

JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: Park Management
Subactivity: Resource Stewardship

Program Components	2001 Estimate	Uncontr/ Related Changes	Program Changes (+/-)	2002 Budget Request	Change From 2001 (+/-)
A. Natural Resources Research Support	9,164	+61	-13	9,212	+48
B. Natural Resources Management	128,889	+1,867	+20,488	151,244	+22,355
C. Everglades Restoration and Research	10,007	+9	+853	10,869	+862
D. Cultural Resources Applied Research	17,706	+242	-53	17,895	+189
E. Cultural Resources Management	77,759	+1,406	-308	78,857	+1,098
F. Resources Protection	43,432	+663	+155	44,250	+818
Total Requirements \$(000)	286,957	+4,248	+21,122	312,327	+25,370

AUTHORIZATION

16 U.S.C. 1	The National Park Service Organic Act
Public Law 105-391	The National Parks Omnibus Management Act of 1998
Public Law 105-203	The National Underground Railroad Network to Freedom Act of 1998

OVERVIEW

The mission of the National Park Service as defined by the 1916 National Park Service Organic Act is...."to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." As steward of the Nation's natural and cultural heritage, the Service is obligated to know what and where the resources are, their current condition, and how to maintain, restore, and protect them, where necessary. Armed with such knowledge, the NPS must take action to restore, preserve, and protect these precious, often irreplaceable resources. In order to carry out this stewardship responsibility, the Service has implemented a program that encompasses a broad range of research, operational, and educational activities conducted to inventory, evaluate, document, preserve, protect, monitor, maintain, and interpret the resources at 384 parks so as to perpetuate their existence, and to allow for their continued appreciation, understanding and enjoyment.

The **Resource Stewardship** subactivity consists of six major program components: natural resources stewardship (which includes natural resources research support and natural resources management) for the preservation and protection of the natural resources of the National Park System, including natural scenery, wildlife, vegetation, air, water, geologic resources, soundscape conditions, and ecosystems of the National Park System; Everglades restoration and research for activities related to the recovery and restoration of the Everglades watershed; cultural resources stewardship (which includes cultural resources applied research and cultural resources management) for the preservation and protection of the National Park System's cultural resources, including prehistoric and historic archeological sites and structures, ethnographic resources, cultural landscapes, and museum collections; and resources protection through patrols and enforcement activities to prevent intentional or unintended damage to resources.

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APPLICABLE NATIONAL PARK SERVICE MISSION GOALS

- Ia Natural and cultural resources and associated values are protected, restored and maintained in good condition and managed within their broader ecosystem and cultural context.
 - Ib The National Park Service contributes to knowledge about natural and cultural resources and associated values; management decisions about resources and visitors are based on adequate scholarly and scientific information.
 - Ila Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities.
 - Ilb Park visitors and the general public understand and appreciate the preservation of parks and their resources for this and future generations.
 - IIla Natural and cultural resources are conserved through formal partnership programs.
 - IIlb Through partnerships with State and local agencies and nonprofit organizations, a nationwide system of parks, open space, rivers, and trails provides educational, recreational, and conservation benefits for the American people.
 - IIlc Assisted through Federal funds and programs, the protection of recreational opportunities is achieved through formal mechanisms to ensure continued access for public recreation use.
 - IVa The National Park Service uses current management practices, systems, and technologies to accomplish its mission.
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A. Natural Resources Research Support FY 2001 Estimated Program and Anticipated Accomplishments

Enacted: \$9,164,000

The Natural Resources Research Support program addresses specific questions with immediate applications for natural resource management within the National Park System, as well as longer-term research to enhance overall understanding of specific park resources and the ecosystems upon which these resources are dependent. It also includes evaluation of research needs and coordination with the Biological Resources Division of the U.S. Geological Survey (USGS/Biological Resources Division) and others to obtain research needed by the NPS. The conduct and acquisition of current research under this activity in FY 2001 is primarily related to physical science investigations.

Typically, parks do not have specific funds allocated for research, but may fund individual projects in any given year. Research needs, objectives, and priorities are included in the Resource Management Plans developed for each park.

A significant focus of the Servicewide natural resources research support program in FY 2001 relates to air quality research. Its primary emphasis is on visibility, a discipline not covered by the USGS/Biological Resources Division or sufficiently by other Federal agencies. This research responds to statutory mandates to protect important scenic resources and other air quality related values in parks from being impaired by air pollution, and assists in meeting NPS responsibilities under the Clean Air Act. A significant portion of this research effort is the acquisition of long-term monitoring data on visibility conditions in national parks, especially Class I parks -- national parks over 6,000 acres, national wilderness areas and national memorial parks over 5,000 acres, and international parks existing on August 7, 1977, per the Clean Air Act, as amended -- and on the composition of particles in the air that cause visibility impairment. Combined with research on the transport and transformation of air pollutants, these data help identify the regions and sources of the pollutants that cause visibility impairment in parks. The \$2.3 million in FY 2001 funding supports continuing NPS research on the effects of particulate matter on visibility in national parks. The NPS will also maintain a 47-station network of fine particle samplers in partnership with the Environmental Protection Agency (EPA), an 18-station network of optical monitors, and a 14-station network of ultraviolet-B

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monitors also in partnership with the EPA. The NPS will also coordinate EPA-funded air quality related ecological effects research and monitoring at selected parks, as well as the expansion of the Environmental Protection Agency's nationwide fine particle sampling network into various NPS Class I areas. Visibility in parks is one of three key performance indicators the NPS uses to assess accomplishments towards one of its long-term strategic goals.

Program	Resources Monitored	Parks in 1999
Air Quality Program, funded by Environmental Protection Agency as part of the Park Research and Intensive Monitoring of Ecosystems Network (PRIMENet).	Ultraviolet-B Radiation	14 parks
Air Quality Program, as part of the multi-agency Interagency Monitoring of Protected Visual Environments (IMPROVE) Program.	Visibility (particulate matter and atmospheric optical variables)	47 parks, 44 as part of IMPROVE Program

In addition to the above, projects funded in FY 2001 include: (1) continued research and development of reliable methods for measuring fine particle absorption, a key component to visibility impairment in many parks, (2) completion of the Big Bend Regional Aerosol and Visibility Observational (BRAVO) Study that focuses on apportioning visibility impairment at Big Bend National Park to United States and Mexican sources of air pollution, (3) continuation of research efforts to apportion and differentiate the contribution of emissions from wildland fires (from those of industrial sources) to fine particle and visibility impacts in NPS Class I areas, and (4) participation with the EPA in the PRIMENet, a research program focusing on establishing a rural, nationwide network of ultraviolet-B radiation monitors and investigating the ecological effects of various airborne environmental stressors at fourteen NPS units. In FY 2001, the NPS will continue most of its FY 2000 activities and will initiate new visibility research in appropriate areas to continue meeting NPS responsibilities under the Clean Air Act.

Cooperative Ecosystem Studies Units (CESUs): A network of Cooperative Ecosystem Studies Units has been established with leadership from the National Park Service, the U.S. Geological Survey, and other Federal agencies. These units are interdisciplinary, multi-agency partnerships, organized into broad biogeographic areas. Each unit includes a host university, additional university and other partners, and Federal agencies. Individual CESUs are part of a national network, operating under a memorandum of understanding among several Federal agencies.

This national network enables the NPS to partner with other Federal agencies and the Nation's universities to obtain high-quality science, usable knowledge for resource managers, responsive technical assistance, continuing education, and cost-effective research programs. Cooperative Ecosystem Studies Units provide specific benefits to the NPS, including: (a) a broadened scope of scientific services for park managers (e.g., research and resource management are better integrated to solve interdisciplinary management problems), (b) enhanced collaboration and coordination between the NPS, other Federal agencies, and universities to address complex landscape-level management issues, (c) enhanced technical assistance, education, training, and planning support to NPS managers, and (d) increased workforce diversity in NPS resource management (e.g., by including Historically Black Colleges and Universities, Predominantly Hispanic Serving Institutions, and Native American Tribal Colleges in the network).

In FY 2001, continuing their selection through a formal competition process, agreements will be executed for two additional CESUs: Chesapeake Watershed and Great Basin. These join the eight existing units established in FY 1999 (Colorado Plateau, North Atlantic Coast, Rocky Mountains, and Southern Appalachian Mountains) and FY 2000 (Desert Southwest, Great Plains, Pacific Northwest [including southeast Alaska], and South Florida/Caribbean. The funding increase provided in FY 2001 enables the NPS to actively participate in all ten Cooperative Ecosystem Studies Units currently in the network.

By the end of FY 2001, a coordinator will have been duty-stationed at a host university in each of the six NPS regions in which CESUs operate to serve multiple parks' needs, and operating funds distributed equally among the ten Cooperative Ecosystem Studies Units. These NPS employees are "science brokers," working with parks to identify research, technical assistance, and education needs, and provide specialized expertise and assistance

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available from the universities and other Federal agency partners to park managers.

Examples of NPS research, technical assistance, and educational activities receiving expertise through the Cooperative Ecosystem Studies Units network in FY 2001 include: assessing values at risk from wildfires; studies of nutrient enrichment in shallow coastal ecosystems, vascular plants and vertebrate animals in eleven parks in the Sonoran Desert Network, southwestern willow flycatchers along the Colorado River, and alpine vegetation and mountain goat habitat in Yellowstone National Park; developing decision support tools to manage invasive plants; web-based resource management training; and field training of undergraduates and graduate students in resource protection for NPS coastal parks.

Learning Centers: In FY 2001, the NPS will complete establishing five Learning Centers in conjunction with parks to host researchers in the parks and extend the knowledge gained to the public at large. All centers leverage Federal funds with partnership sources. These initial Learning Centers are located at Cape Cod National Seashore (a lead NPS prototype inventory and monitoring park for coastal ecosystems), Kenai Fjords National Park and Preserve, Rocky Mountain National Park (linked with the NPS Rocky Mountain Inventory and Monitoring Network), Point Reyes National Seashore, and Great Smoky Mountains National Park. During FY 2001, each of these initial Learning Centers will be provided operating funds of at least \$225,000 to fund establishment of a research/center coordinator and education specialist at each center and support their start up costs. In FY 2001, the initial work focuses on initiating operation of the Learning Centers and setting the stage for a wide range of research on topics for which parks provide excellent research settings and may, incidentally, aid in meeting park information needs. Initially, these topics include research on coastal ecosystems, environmental history and cultural landscapes, fire ecology and prescribed fire. In FY 2001, Learning Center activities will also focus on developing educational and training materials and programs for diverse audiences.

These activities support the achievement of several of the Service's long-term goals including Ia1: Disturbed Lands/Exotic Species, Ia2: Threatened and Endangered Species, Ia3: Air Quality, Ia4: Water Quality, and park-specific long-term goals Ia2x: Native Species, and a park-specific long-term goal (not shown below) Ib0: Park-specific goals not aggregating to Servicewide goals (Cooperative Ecosystem Studies Units support and Learning Centers).

Performance Goals

Long-term Goal Ia1	By September 30, 2005, 10.1% of targeted parklands, disturbed by development or agriculture as of 1999 (22,500 of 222,300 acres), are restored; and Ia1B -- exotic vegetation on 6.3% of targeted acres of parkland (167,500 of 2,656,700 acres) is contained.
Annual Goal Ia1	By September 30, 2002, 4% of targeted parklands, disturbed by development or agriculture, as of 1999, are restored; and exotic vegetation on 2.5% of targeted acres of parkland is contained.
Long-term Goal Ia2	By September 30, 2005, 19% of the 1999 identified park populations (84 of 442) of federally listed threatened and endangered species with critical habitat on park lands or requiring NPS recovery actions have an improved status; and Ia2B -- an additional 21.5% (94 of 442) have stable populations.
Annual Goal Ia2	By September 30, 2002, 15.2% of the 1999 identified park populations of federally listed threatened and endangered species with critical habitat on park lands, or requiring NPS recovery actions have an improved status; and an additional 21.3% have stable populations.
Long-term Goal Ia3	By September 30, 2005, air quality in 70% of reporting park areas has remained stable or improved.
Annual Goal Ia3	By September 30, 2002, air quality in 63% of reporting park areas has remained stable or improved.

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Long-term Goal Ia4	By September 30, 2005, 85% of 288 park units have unimpaired water quality.
Annual Goal Ia4	By September 30, 2002, 70% of 288 park units have unimpaired water quality.

FY 2002 BUDGET REQUEST

	2002 Budget Request	Program Changes (+/-)
▪ Natural Resources Research Support \$(000)	9,212	-13
The FY 2002 request for Natural Resources Research Support is \$9.212 million, which represents a net increase of \$48,000 over the FY 2001 enacted level. The FY 2002 proposed programmatic decrease of \$13,000 to Natural Resources Research Support activities includes streamlining.		
Justification for this program change is included at the end of this subactivity's presentation.		

B. Natural Resources Management
FY 2001 Estimated Program and Anticipated Accomplishments

Enacted: \$128,889,000

Natural resource management within the National Park System is conducted largely at the park level, including planning for resource preservation programs and projects. This resource management is effectively park-based with the primary responsibility for natural resource preservation activities vested with the parks themselves. Centralized subject-matter specialists provide park managers with cost-effective scientific support and technical assistance on the range of air, water, geologic, and biologic park resource management needs, including science-based decision-making support and problem resolution. National Park Service subject-matter specialists provide the special expertise needed to assist parks in performing multi-park activities necessitating specialized skills or approaches (e.g., abiotic resource inventories, Exotic Plant Management Teams). Natural resource funding received by the NPS is allotted primarily to provide salary and support costs for personnel based in parks where only limited or non-recurring funds may be available to fund needed programs and projects.

The only reliable and dedicated major source of funds for park natural resource management projects is the Natural Resource Preservation Program (NRPP). This Servicewide program provides funding for park natural resource management related projects that are beyond the funding capabilities of the parks themselves and has come to be relied on by parks to fund the highest priority individual projects. The Natural Resource Preservation Program is used not only to provide a source of funding for large natural resource management projects (costing more than \$50,000) but a portion is used to fund projects in smaller parks. In FY 1999, the most recent year data is available, documented, non-recurring park natural resource project needs totaled more than \$534 million, with large projects making up 55 percent of the total number of projects and 93 percent of the total funding needed. In FY 2001, the NPS committed a substantial portion of NRPP funding, more than \$4.7 million to implementing natural resource projects in parks. Approximately thirteen new major projects were initiated in FY 2001, while the total number of NRPP projects increased from 164 in FY 2000 to 170 in FY 2001. While these funds support diverse natural resource projects designed to preserve geologic, wildlife, fisheries, vegetation, environmental conditions (e.g., soundscape conditions), and other natural features in parks, in FY 2001 the NPS continued to target additional NRPP funds into two special emphasis areas: the restoration of natural resources damaged due to human disturbance, and the restoration of threatened and endangered species.

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Multi-year park projects continuing or initiated in FY 2001 include development of a human-bear management plan at North Cascades National Park; population survey of desert tortoise at Mojave National Preserve; stream and watershed restoration projects in Buffalo National River and Denali National Park and Preserve; creek restoration at Golden Gate National Recreation Area; backfilling of abandoned oil and gas exploration canals to restore marshes at Jean Lafitte National Historical Park and Preserve; and wetlands surface hydrology restoration at Big Cypress National Preserve; restoration of wetlands and wet prairie habitat at Palo Alto Battlefield National Historic Site; plugging improperly abandoned oil and gas wells at Mammoth Cave National Park; and removal and restoration of earthen dams at Florissant Fossil Beds National Monument.

These activities support the achievement of several of the Service's long-term goals including Ia1: Disturbed Lands/Exotic Species, Ia2: Threatened and Endangered Species, Ia3: Air Quality, Ia4: Water Quality, and park-specific long-term goals Ia2x: Native Species, and Ib0: Park-specific goals not aggregating to Servicewide goals (Cooperative Ecosystem Studies Units support and Learning Centers).

Park projects funded in FY 2001 through NRPP funding support the achievement of several of the Service's long-term goals including Ia1: Disturbed Lands/Exotic Species, Ia2: Threatened and Endangered Species, Ia3: Air Quality, Ia4: Water Quality, and park-specific long-term goals (not shown below) Ia2x: Native Species, and Ib0: Park-specific goals not aggregating to Servicewide goals (Natural Resource Data Management and Distribution).

Performance Goals

Long-term Goal Ia1	By September 30, 2005, 10.1% of targeted parklands, disturbed by development or agriculture as of 1999 (22,500 of 222,300 acres), are restored; and Ia1B -- exotic vegetation on 6.3% of targeted acres of parkland (167,500 of 2,656,700 acres) is contained.
Annual Goal Ia1	By September 30, 2002, 4% of targeted parklands, disturbed by development or agriculture, as of 1999, are restored; and exotic vegetation on 2.5% of targeted acres of parkland is contained.
Long-term Goal Ia2	By September 30, 2005, 19% of the 1999 identified park populations (84 of 442) of federally listed threatened and endangered species with critical habitat on park lands or requiring NPS recovery actions have an improved status; and Ia2B -- an additional 21.5% (94 of 442) have stable populations.
Annual Goal Ia2	By September 30, 2002, 15.2% of the 1999 identified park populations of federally listed threatened and endangered species with critical habitat on park lands, or requiring NPS recovery actions have an improved status; and an additional 21.3% have stable populations.
Long-term Goal Ia3	By September 30, 2005, air quality in 70% of reporting park areas has remained stable or improved.
Annual Goal Ia3	By September 30, 2002, air quality in 63% of reporting park areas has remained stable or improved.
Long-term Goal Ia4	By September 30, 2005, 85% of 288 park units have unimpaired water quality.
Annual Goal Ia4	By September 30, 2002, 70% of 288 park units have unimpaired water quality.

Natural Resource Planning

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Resource Management Plans (RMP) define the park's natural and cultural resource management programs and serve as a blueprint for the comprehensive management of resources necessary to meet the Park Service's statutory obligations under the 1916 Organic Act. Resource management plans are intended to tier off of park management prescriptions (desired future conditions) for park resources and visitor experiences identified in park general management plans, providing specific resource management program direction and guidance to park strategic plans. Servicewide in FY 1999 (the last year the legacy RMP database was complete), park resource management plans identified at least 19,000 natural resource management program and project needs with 267 parks reporting. In FY 2001, the NPS is initiating measures to improve the integration of resource management planning with park general management plans, long-term strategic planning, and performance-linked park strategic plans. During FY 2001, the NPS is developing a new information system replacement for the legacy RMP database to organize park resource management needs, improve tracking and accomplishment reporting, and improve data integration into strategic planning and bureau budget information systems. These planning activities include public involvement and support the preparation of park-specific strategies and projects necessary to achieve many of the Service's Ia and Ib long-term performance goals.



Restoring eroded area on Santa Barbara Island at Channel Islands National Park

Natural Resources Inventory and Monitoring Activities

Park managers require scientifically sound, comprehensive information on the natural resources occurring within parks and the processes necessary to maintain them in order to meet the bureau's statutory obligations. The NPS administers a Servicewide Inventory and Monitoring (I&M) Program and also has inventory and monitoring components as part of other programs such as the air quality and water resources programs. The Servicewide inventory and monitoring program funds a systematic effort to meet specific natural resource inventory needs at approximately 256 parks. Inventory information is an essential component to understanding species diversity, abundance, and distribution.

Natural resource inventories address a general lack of scientific information and monitoring expertise. The Service utilizes an inventory and monitoring program to acquire twelve basic data sets for each of the 256 parks included in the inventory and monitoring program. The inventories include: an automated, historical database (bibliography); surveys/lists of vascular plants, vertebrates, threatened and endangered species, and other species of special concern for a particular park; cartographic, geologic, and soils maps; water resource inventories; air quality information, including air quality related values; and basic precipitation and meteorological data. The NPS is cost-sharing completion of a twelfth data set, vegetation mapping, with the USGS/Biological Resource Division. Collectively, these data sets represent the minimum scientific information needed to manage park natural resources and effectively address the bureau's statutory responsibilities.

The Servicewide I&M program continues to accelerate efforts to complete inventories for base cartography data, air quality, soils mapping, geologic resources, and water quality in FY 2001, comprising 332 separate park resource inventories. In addition, the Service is also compiling and verifying existing species information for an additional 70 parks. In FY 2001, the NPS continues field-level inventories for vascular plants and vertebrate species of special concern to park managers (e.g., distribution of critical habitat for the endangered piping plover at Cape Cod National Seashore) in 32 park networks involving nearly 270 parks. A description of the twelve data sets follows as well as a table summarizing the progress to date on the inventory and monitoring program.

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Bibliographies. Critical to informed natural resource management decisions is access to historical scientific and pertinent anecdotal information for decision-makers. In FY 2001, the NPS plans to complete cataloguing this information from park holdings (publications, reports, maps, etc.) contained in a wide range of repositories within parks and other locations, and incorporate the information into a comprehensive, centralized database which can be readily accessed by NPS managers.

Base Cartography Data. By far, the most efficient and cost-effective way for park managers to utilize complex natural resource information is through spatial display and analysis. For example, by incorporating relatively basic information about vegetation communities and topography into a spatial analysis, managers can locate potential habitats for endangered plant species or predict conditions likely to influence a wildland fire. Consequently, all parks urgently need the assembly of basic spatial information access and support from geographic information systems (GIS) to support decision-making and resource protection activities. To help accomplish that goal, this inventory effort will continue to obtain four basic cartographic products needed to construct and update park geographic information system capabilities through a 50:50 cost-share arrangement with the U.S. Geological Survey.

Vegetation and Landcover Maps. Vegetation information is arguably the most critical piece of information needed for park resource management and protection. Vegetation assemblages integrate diverse information on air quality, soils, topography, hydrology, meteorological conditions, and animal interactions that provide park managers with a key measure on the status of the natural systems they are managing. Spatial vegetation data for parks in Alaska continues to be developed to assist NPS managers in monitoring, detecting, and quantifying changes in park plant species distribution and condition, and to aid in determining if such changes are natural or man-caused. The NPS and USGS/Biological Resources Division are also currently cooperating to collect similar data for all natural resources in parks within the Servicewide natural resource inventory and monitoring program outside of Alaska. Vegetation maps are vital for (1) the management and protection of wildlife habitat (e.g., forest age structure and minimum habitat area dependence of certain neotropical migratory songbirds), (2) modeling vegetation flammability and fuel loading implications for fire management, (3) analyses for site development suitability, and (4) evaluation of resources at risk. In FY 1999, only ten percent of the parks had a comprehensive vegetation inventory and corresponding spatial information. Aerial photography is being used as the basis for this mapping in parks outside of Alaska. In Alaskan parks, vegetation and associated landcover features are being mapped from satellite imagery because of their large size. In FY 2001, the NPS received additional funding for and accelerated this activity which, due to the lengthy procedures involved in developing vegetation maps, will appear in the completed map total for FY 2003.

Species Lists. Park management must be based on a thorough understanding of the species occurring within each park in order to meet the bureau's statutory responsibilities. In FY 2001, ongoing vertebrate wildlife and vascular plant species lists developed through previous surveys and park inventory and monitoring projects are providing crucial information concerning both native species and nonnative species. While native species information, when coupled with habitat information within parks, supports NPS efforts to protect and aid in the recovery of threatened and endangered species, information on invasive nonnative species substantially assists the bureau in addressing this major and very widespread threat to the preservation and restoration of natural habitats in the parks. Vegetation information is vital for effective planning of new field investigations and research in the parks. Similar to the bibliography projects described above, this aspect of the inventory and monitoring program consolidates all existing species lists, wildlife observation cards and similar information available in the park, as well as species information from other Federal and/or State resource management agencies, and The Nature Conservancy into comprehensive park species databases which are readily accessible to park managers.

Biological Inventories. A survey of 252 natural resource parks published in 1993 revealed that more than 80 percent of those parks lacked reliable information about which species were present, their geographic and ecological distribution, and relative abundance in the park. This component of the inventory and monitoring program provides for new field inventories with the goal of documenting the occurrence and relative abundance of at least 90 percent of the vertebrate wildlife and vascular plants found in parks, giving special attention to species occurring on Federal and/or State threatened and endangered listings. These inventories also provide park managers with baseline information needed to

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monitor these resources in the future to detect change. A funding increase received in FY 2001 is being used to accelerate the acquisition of biological inventory information, including amphibian inventories.

Water Quality. Park managers urgently need information about the current status of water quality in the parks as well as "benchmarks" against which they can compare future information. In that context, the primary goal of this inventory activity is to provide descriptive water quality information in a format useful to park managers. For each park, a Baseline Water Quality Data Inventory and Analysis Report is being prepared which provides a wide variety of water quality status and trend information. Additional water quality inventories are also being conducted where park coverage is incomplete and gaps need to be filled. In addition to benefiting parks, the information is used to support activities under the Clean Water Act and other national programs.

Soils Maps. Soil surveys provide basic information needed to manage soil sustainability and to protect water quality, wetlands, vegetation communities, and wildlife habitats. Soil surveys also provide managers with the ability to predict the behavior of a soil under alternative uses, its potential erosion hazard, its potential for ground water contamination, its suitability for control of exotic plant species and establishment of native communities, and its potential for preservation of cultural sites and landscapes. The NPS works cooperatively with the U.S. Department of Agriculture's Natural Resources Conservation Service to provide park managers with basic information about soils throughout the parks as well as more detailed information for potentially high-use or developed areas in the park (e.g., visitor centers, campgrounds, access roads, etc.).

Geology Maps. Geologic maps are critical for documenting the nature and location of unique geologic features described in park enabling legislation, including ground water supplies, paleontological resources, caves and other karst resources, and abandoned mine lands requiring restoration. These maps also serve as predictive tools in locating populations of plant and wildlife species dependent on unique chemical environments. Furthermore, the predictive capabilities of geologic maps can help park managers better protect visitor safety by identifying the location of potential geologic hazards. Each park is being provided with a report containing a detailed listing and evaluation of geologic information currently available for the park plus a copy of any existing geologic maps in digital format. Park-specific needs for additional geologic mapping are identified by the NPS through this process and cooperative mapping efforts pursued with academic institutions, USGS, or State agencies.

Water Resource Location. This component of the inventory program will focus on locating and classifying important water bodies in parks. The protection of park waters, watersheds, and aquatic life is fundamental to the Service's ability to meet its statutory responsibility to preserve park resources, and to ensure the quality of the visitor experience. Information to be collected will include the location and size of streams, lakes, and springs. In addition, State water body classifications under the Clean Water Act will be attributed, as will information on the attainment or non-attainment of State water quality standards. Among other applications, information of this nature is needed to determine watershed boundaries and how land management practices within that watershed might eventually impact park resources. Because of this, several park monitoring programs are based upon a watershed strategy. Some components of this inventory are currently being acquired through the hydrography component of the base cartographic inventory.

Air Quality Data. The Clean Air Act amendments require that Federal land managers protect air quality related values (AQRVs) for public lands from the adverse effects of air pollution, including emissions from new point sources of air pollution. These AQRVs usually include sensitive plant and animal species, sensitive lakes and soils, and levels of visibility. This list is needed by States and air quality permit applicants who are required to demonstrate that their additional emissions will not have an "adverse effect" on air quality related values in Class I areas. The NPS has 48 Class 1 areas that require this level of protection while all other NPS units are considered to be Class II areas. During FY 2001, the NPS is continuing development of AQRV lists for numerous parks. The lists will include: (1) species of flora and fauna potentially sensitive to air pollution and acid deposition (including invertebrate species), (2) sensitive ecosystems and ecosystem processes (e.g., watersheds), (3) sensitive soils and surface waters, and (4) scenic vistas.

Air Quality Stations. A large number of parks do not currently have permanent air quality monitoring stations located within their boundaries. Therefore, these parks have to rely upon obtaining air quality information from stations located

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adjacent to but outside of the park's boundaries. In FY 2001, the NPS will continue to identify available sources of air quality information closest to the park boundary for the 256 parks within the Servicewide inventory and monitoring program and evaluate its usefulness for park management and resource protection. The inventory will also focus on providing information on location of sources and changes in air pollutants that parks should be concerned about. This inventory activity will be conducted simultaneously with air quality inventories described above.

Meteorological Data. The meteorological information to be compiled for parks will include basic data on annual precipitation, relative humidity, prevailing wind speed and direction, and temperature variability. For example, several of the parameters are needed to predict fire behavior patterns and therefore improve the park's ability to plan and safely manage both hazard reduction and resource objective prescribed burns, and wildfires. This information is also essential for park managers to assess cyclical and other episodic forest insect and disease conditions commonly influenced by meteorological conditions. The data are also used in numerous vegetation monitoring studies and essential in gaining a better understanding of the current and potential distribution of native, threatened and endangered, and exotic plant species in the parks.

Natural Resources Inventory Data Sets	Funded/Completed As of FY 2001	Number of Applicable Parks
Automated Bibliographies	256	256
Base Cartographic Data	248	256
Vegetation (Non Alaska)	25	240
Alaska Landcover Mapping	3	16
Species Lists	256	256
Biological Inventories	0	256
Water Quality		
Databases Summarized	256	256
Field Surveys (Gaps)	50	256
Soil Maps	45	256
Geology		
Baseline Assessments	35	256
Digital Maps	48	256
Air Quality	256	256

In addition to conducting resource inventories, the Service's inventory and monitoring efforts involve the acquisition of accurate information about the current condition of park natural resources, monitoring resource conditions over time, and developing standards to evaluate these changes and assessing the effectiveness of NPS management actions to preserve park natural resources. To date, the NPS has funded twelve prototype ecological monitoring programs involving 22 parks to develop and test cost-effective methods for monitoring park ecosystem status and trends over time.

These long-term monitoring programs are used to formulate management strategies to detect and cope with threats to park natural resources. The USGS/Biological Resources Division funds and oversees initial design of the prototype monitoring programs, which the NPS funds and operates once designed. Lessons and expertise gained through these prototypes provide approaches that are frequently transferable to other parks. In addition, the Service has also initiated monitoring of core park vital signs in five geographic networks involving 55 park units.

In FY 2001, the NPS will operate five multi-park geographic networks encompassing 55 parks for long-term monitoring of park vital signs. During FY 2001, these vital signs monitoring networks will be provided funding for network monitoring coordinators and data managers, and some networks will also use network funding to conduct scoping workshops designed to refine specific park monitoring needs – including identifying additional research necessary to develop monitoring protocols – together with monitoring strategies and priorities. The five operating networks are at different phases in the design and implementation. Monitoring network activities in FY 2001 will include the following: (1) the Cumberland Piedmont and Sonoran Desert networks will initiate cooperative efforts with the

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USGS and University of Arizona, respectively, to secure water quality monitoring protocols based on the identification of water quality as a high monitoring need in the parks comprising both the these networks, (2) the North Coast and Cascades network will monitor small watersheds and glaciers in Olympic National Park, exotic fish at North Cascades National Park, and rare plants at Mount Rainier National Park, (3) the Ozark Highlands parks within the Heartland network will conduct pilot monitoring projects for water quality, stream fisheries, and riparian corridors, and (4) the Northeast Coastal and Barrier network will work to develop an agreement to provide collaboration with the University of Rhode Island concerning the network's monitoring program.



*Salmon study at Lake Clark
National Park and Preserve*

The Park Service has implemented a partnership with the U.S. Geological Survey to conduct water quality assessments funded by the U.S. Geological Survey in parks. In FY 2001, the NPS will begin implementation of water quality monitoring in support of the NPS strategic plan with monitoring initiated in the Appalachian Highlands, Central Alaska, Cumberland/Piedmont, Greater Yellowstone, Heartland, Mediterranean Coast, National Capital, North Coast and Cascades, Northeast Coastal and Barrier, Northern Colorado Plateau, San Francisco Bay, and Sonoran Desert monitoring networks and fully integrated with the bureau's vital signs monitoring program. This monitoring will focus on documenting the preservation of pristine waters and the improvement in water quality of impaired park waters.

A significant portion of the Service's FY 2001 air resource activity is dedicated to monitoring air pollution in parks. This monitoring includes the measurement of ozone, other gaseous pollutants, meteorological conditions, and acidic deposition (acid rain) levels to supplement the visibility and fine particulate information being developed as part of the NPS applied research into air quality. Ongoing air quality monitoring is important to the preservation of air resources in parks and is necessary to: (1) accurately assess conditions in the parks, (2) detect any of several gaseous pollutants which have been shown to be particularly injurious to park vegetation, (3) measure ozone levels in parks (e.g., Great Smoky Mountains National Park and Sequoia National Park) where concentrations exceed threshold levels and national ambient air quality standards, and (4) collect data on wet and dry atmospheric deposition of sulfur and nitrogen compounds on park ecosystems with significant adverse effects on lakes, streams, and soils. Historically, neither the EPA nor the various States have monitored air pollution levels in rural areas, particularly in national parks. In FY 2001, the NPS is continuing to collect systematic data on sulfur dioxide, ozone, and meteorological parameters at 43 stations in 34 parks; wet deposition (acid precipitation) as part of the National Atmospheric Deposition Program/National Trends Network in 42 parks; and visibility (atmospheric extinction or scattering) in 18 parks. Air quality information developed through the NPS and partnership research activities will also provide monitoring information on ultraviolet-B radiation in 14 parks and particulate matter in 46 parks. The NPS extensively leverages the funding it commits to air resource monitoring through formal partnerships with Federal (primarily EPA), State and local agencies.

Service-wide natural resource program monitoring activities are summarized in the following table:

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Servicewide Monitoring Activities	Resources Monitored	Number of Parks in 2001
Air Resources	Sulfur dioxide, ozone, and meteorological parameters	43 stations in 34 parks (7 Cooperator funded in 6 parks)
Air Resources	Wet deposition (acid rain) as part of the National Atmospheric Deposition Program National Trends Network	42 parks (10 Cooperator funded in 10 parks)
Air Resources	Visibility (atmospheric extinction or scattering)	18 parks
Water Resources through USGS Water Quality Assessment Partnership	Park specific priorities	32 projects in 28 parks
Water Resources through NPS Vital Signs Monitoring Network	Pristine waters Impaired waters	Up to 101 parks in 11 networks
Inventory and Monitoring	Park natural resource and ecosystem conditions through development and testing of prototypes	<u>Operational:</u> Channel Islands National Park Great Smoky Mtns National Park Shenandoah National Park <u>In design</u> (BRD-funded): Denali National Park Great Plains cluster (6 parks) Virgin Islands cluster (3 units) Cape Cod National Seashore

Much of the data being developed through both inventory and monitoring efforts are digital, geographically referenced data that can be utilized in geographic information system applications and allow comparisons and analysis of several data sets together. There are currently over 100 parks with operational systems and about 250 sites operate desktop geographic information systems as decision-support tools on an as-needed or part-time basis. Staffing of park-based programs is funded at the park level and supports a wide variety of resource management and other applications. In addition, regionally distributed GIS technical support services and geographic information system funding is provided to acquire spatial data to assist parks with GIS-supported analyses, especially parks with limited capability.

These activities support the achievement of the Service's long-term goals including Ia3: Air Quality, Ia4: Water Quality, Ib1: Natural Resource Inventories, and Ib3: Vital Signs, and a park-specific long-term goal (not shown below) Ib0: Park-specific goals not aggregating to Servicewide goals (Natural Resource Data Management).

Performance Goals

Long-term Goal Ia3	By September 30, 2005, air quality in 70% of reporting park areas has remained stable or improved.
Annual Goal Ia3	By September 30, 2002, air quality in 63% of reporting park areas has remained stable or improved.
Long-term Goal Ia4	By September 30, 2005, 85% of 288 park units have unimpaired water quality.
Annual Goal Ia4	By September 30, 2002, 70% of 288 park units have unimpaired water quality.
Long-term Goal Ib1	By September 30, 2005 acquire or develop 2,203 (87%) of the 2,527 outstanding data sets identified in 1999 of natural resource inventories for all parks.
Annual Goal Ib1	By September 30, 2002, acquire or develop 44% of the 2,527 outstanding data sets identified of basic natural resource inventories for all parks.

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Long-term Goal Ib3	By September 30, 2005 80% of 265 parks with significant natural resources have identified their vital signs for natural resource monitoring.
Annual Goal Ib3	By September 30, 2002, 20% of 265 parks with significant natural resources have identified their vital signs for natural resource monitoring.

Natural Resource Preservation Activities

NPS programs in FY 2001 focus on responding to a number of complex issues including: protecting parks as increasingly crowded remnants of primitive America in a fragmented landscape, threats by invasive exotic species, pollution, and incompatible uses of resources in and around parks. The NPS is actively managing National Park System natural resources to meet its statutory responsibility to preserve these resources unimpaired. While most natural resource preservation activities are funded and undertaken at the park level, technical assistance supporting science-based decision-making is provided to parks through Servicewide programs for these and most natural resource mitigation and restoration efforts. The NPS is engaged in managing non-visitor uses of natural resources (e.g., mining and grazing) located and legally permitted within parks. Natural resource programs and projects are routinely developed and implemented at the park-level, and frequently supported by Servicewide technical assistance specialists.

Park units contain many examples of areas disturbed by past human activity and adverse effects to park resources that require restoration. These activities and associated impacts include: abandoned roads; backcountry campsites and other discrete areas impacted by visitor and other uses; habitats such as prairies and wetlands altered by changes in water flow; areas invaded by exotic plant species; disruption of natural fire regimes with losses of fire-dependent vegetation and wildlife habitat; and populations of threatened and endangered and other plants and animals that have been extirpated from an area. More than 500,000 acres of NPS managed lands exist in damaged condition that results in lost plant and wildlife habitat, accelerated erosion, sedimentation, poor water quality, diminished water quantity, and visual scars. Parks must determine appropriate levels and types of visitor use and permitted activities such as fishing, river use, backcountry use, and hunting. Parks must evaluate, plan, and design the appropriate type and level of activities that can be carried out without impairing resources. This often results in the development of a management or operations plan that utilizes an environmental assessment to evaluate alternatives and needed mitigation. The plans are based on data developed through research and monitoring projects.



Exotic cheatgrass dominates grasses at historic Kirk's Cabin in Canyonlands National Park

Information and results obtained from air quality research and other NPS air quality monitoring programs advance the state of science of air pollution -- and the effects on natural ecosystems and visibility -- and are used to influence decisions by States, other Federal agencies, and foreign governments to protect resources from the adverse effects of air pollution. Data are also used to inform and educate regulatory agencies, park visitors, and the public on trends in visibility in national parks; and, to assist States and regional organizations in formulating appropriate strategies to improve visibility in national parks. Pursuant to the Environmental Protection Agency's fine particulate matter standard (PM_{2.5}) and regional haze regulations, States and Federal agencies rely heavily on NPS monitoring data and research findings in developing and implementing their State Air Quality Implementation Plans. The NPS will continue active participation in the Southern Appalachian Mountains Initiative, the Western Regional Air Partnership, and other regional planning organizations that have been established to assist with implementation of the visibility protection programs in the Northeast, Southeast, Great Lakes, and Central regions. The NPS will provide critical visibility and ecological effects monitoring and research information to develop and implement regional

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solutions to difficult air pollution issues facing Shenandoah, Great Smoky Mountains, Grand Canyon and other national parks.

A significant potential external threat to park natural resources is the construction of new major sources of air pollution, particularly to those NPS units designated as Class I areas under the Clean Air Act. In FY 2001, the NPS is continuing reviews of permit applications for new sources, actively working with permittees, and assisting States in the permitting process to reduce the levels of air pollution from these sources and mitigate potential adverse effects on park resources.

In FY 2001, the NPS began to inventory air pollution sources within parks to assess its own compliance with air pollution control, licensing, and emission fee requirements; and to develop strategies and mechanisms for reducing or preventing pollution caused by park operations or management practices with particular emphasis on smoke from wildland fires and vehicle-related issues.

Service-wide air quality conditions are summarized in the following table:

Air Quality in Reporting Parks	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Percent of park improvement (from 1997 baseline)	59%	60%	63%

In FY 2001, the NPS will continue a comprehensive Service-wide program for the preservation of native species and the management of exotic species in parks. This program will assist parks in addressing technically complex native species management needs requiring the application of scientific knowledge and often involving legal or policy related issues, especially to parks lacking the expertise necessary to address natural resource issues. Assistance provided to parks in FY 2001 included assessing the consequences of wildlife disease outbreaks, developing Integrated Pest Management procedures to aid parks in managing wildlife diseases potentially transmissible to humans, designing mitigation measures to aid in the recovery of threatened and endangered species or ecosystem functions, preparing guidance for the safe and humane capture and chemical immobilization of wildlife, and evaluating the potential use of biological control agents and other management techniques to control invasive exotic plant species.

More than 160 parks currently provide important habitat for at least 168 species listed under the Endangered Species Act. These species include 86 plants, 29 birds, 20 mammals, 14 fish, 10 reptiles, eight (8) invertebrates, and one (1) amphibian. Recovery plans prepared by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service have assigned 2,039 recovery tasks affecting parks. These conservation activities involve a range of tasks including the restoration of habitat for the endangered Mojave tui chub in Mojave National Preserve; removal of exotic plants and habitat protection for the Mission blue butterfly at Golden Gate National Recreation Area; habitat assessments for Mexican spotted owls at Grand Canyon National Park; control of exotic plant and animal species threatening to extirpate highly endangered native species in Hawaii Volcanoes and Haleakala National Parks; and incorporating public education in law enforcement patrols that is aimed at eliminating the poaching of endangered species. In FY 2001, through increases in base funding at eight parks, the NPS is expanding its capability to provide science-based support in the design and performance of recovery actions. During FY 2001, the NPS is preparing an updated inventory of listed species and the parks in which they occur, recovery actions assigned to the bureau, and the presence of designated critical habitat within parks.

Continuing in FY 2001, in conjunction with its native and endangered species programs, the NPS will continue to expand its program to contain and reduce exotic (nonnative) species infestations, particularly those involving species capable of readily invading new environments or displacing native species in parks. Exotic species in at least 194 parks, especially invasive exotic species, are a serious problem and adversely effect other species that are native to the parks, including endangered species.

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GPS survey mapping of exotic plants by National Capital Region Exotic Plant Management Team

In FY 2001, four specialized NPS Exotic Plant Management Teams (EPMTs) were established and are implementing high priority exotic species management efforts in up to 41 parks. These field or park-based teams include: (1) the Florida team (based at Florida International University in Miami), (2) the National Capitol Region team (based at Rock Creek Park, Washington, D.C.), (3) the Chihuahuan Desert/Southern Shortgrass Prairie team (based at Carlsbad Caverns National Park, New Mexico), and (4) the Pacific Islands team (based at Haleakala National Park, Hawaii). Each EPMT serves a number of parks over a broad geographic area and works with these parks to identify, develop, conduct and evaluate exotic species removal projects and undertake appropriate native species restoration efforts. The NPS estimates that these teams will increase the acreage of exotic species being actively controlled by 10,000 acres and also improve the status of several threatened or endangered species populations occurring in parks where listing resulted, at

least in part, from competition or displacement by exotic species. The NPS is using various approaches including integrated pest management, supported by current scientific information, to control exotic species populations in parks and to protect sensitive resources from destruction by exotic species. In FY 2001, through increases in base funding at thirteen parks, the NPS is expanding its capability to support the design and performance of exotic species management actions.

The following table presents cumulative NPS acreage for disturbed land restoration projects initiated or planned in parks and the acreage of invasive species contained.

Disturbed Lands/Exotic Species Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Acres of lands restored that were impacted by former uses	36,400	47,400	52,000
Acres of invasive plant and animal species contained	181,300	204,200	222,000

In FY 2001, the NPS continued Servicewide management of geologic resources by concentrating on programs that provide specialized, scientifically-based support to parks, including expanded capabilities to address coastal and restoration geomorphology, and paleontology. The Service is assisting numerous parks in FY 2001 with technical needs concerning cave and karst systems, coastal processes, paleontological resources, geologic hazards, and reclamation geology (e.g., erosion control, fluvial geomorphology, slope stability, soils), and providing pertinent scientific information in the development and implementation of management actions involving geologic resources.

In addition, the NPS is continuing to protect park natural resources and values from adverse impacts associated with past, current, and future mineral development in and adjacent to parks. Formal plans incorporating appropriate resource protection and mitigation measures are required for private mineral development pursuant to implementing statutory requirements. In FY 2001, National Park Service lands contain nearly 750 active private mineral exploration or development operations in 28 parks, most involving the production of oil and gas. The NPS continues to be engaged in long-term oil and gas management planning efforts at Big Thicket National Preserve, Big Cypress National Preserve, Lake Meredith National Recreation Area, and Padre Island National Seashore to ensure protection of park resources and values, and provide detailed guidance to industry to facilitate operation planning and regulatory compliance. Abandoned mining, and oil and gas exploration and production sites represent a substantial portion of the disturbed lands in parks requiring restoration. The NPS currently has as estimated 3,000

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abandoned mineral sites with over 11,000 hazardous openings, at least thirty miles of streams with degraded water quality, and more than 33,000 acres of disturbed, generally impaired lands associated with previous mineral development in parks. In addition, mineral development on adjacent lands could potentially threaten natural resources in at least 36 parks. Servicewide technical and policy support is being provided in FY 2001 to over 50 parks to protect natural resources and values from the impacts associated with mineral development and to properly reclaim lands disturbed from past mineral exploration and production activities.

The NPS continues to address the restoration needs of abandoned mine lands (AML) within the parks. In FY 2001, the NPS is performing reclamation projects in fifteen parks. These projects include surface reclamation; watershed restoration; adit and shaft closures; and safety projects at numerous parks, eleven of these are new AML reclamation projects initiated during fiscal year 2000. Examples include: (1) closing mine openings to eliminate safety hazards or protect bat habitat at Buffalo National River, Saguaro National Park, and Joshua Tree National Park, (2) recontouring, erosion control, revegetation, and debris removal at former mining sites in Wrangell-St. Elias National Park and Preserve, Great Basin National Park, Denali National Park and Preserve, Point Reyes National Seashore, and Lake Mead National Recreation Area, and (3) site assessment and restoration planning at New River Gorge National Recreation Area, and Petroglyph National Monument.

FY 2001 Servicewide Mitigation and Restoration Actions	Number of Actions	Number of Parks Affected
Field Inspection of Ongoing Mineral Operations in Parks	21	5
Technical Review and Evaluation of Proposed Mineral Development Operations in Parks	45	10
Park Minerals Management Plans and Environmental Planning Documents	4	4
Review Mineral Operations and Restoration Plans Adjacent to Parks	13	25
Mineral Operation Regulatory Compliance Actions in Parks	38	3
Abandoned Mine Lands Reclamation and Safety Projects in Parks	10	9
Disturbed Lands Restoration and Rehabilitation in Parks	16	15

The NPS is continuing to protect and secure water resources necessary to preserve park natural resources, restore water conditions that have been adversely affected by human influence, and ensure that water is available to meet visitor needs. This support is provided through technical and scientific evidentiary assistance; maintain water rights records; negotiate settlements with other water users; work with the States in response to their actions; participate in water rights proceedings; and verification of water rights and uses as required. Servicewide assistance is being provided in FY 2001 to more than 60 parks where water rights actions are underway. Projected NPS FY 2001 water rights technical assistance involvement, based on FY 2000 workload, are summarized below.

FY 2001 Water Rights Projected Accomplishments Actions (based on FY 2000 Workload)	Number of Actions	Number of Parks Affected
Water Rights Applications Evaluated for Impacts to NPS Resources Protected Using State Laws	15	9
Water Rights Applications Protested Using State Laws	67	6
Settlements or Protected and Withdrawn	9	6

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Proceedings in Progress (NPS Participating)	38	48
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In FY 2001, the NPS will continue its activities in other water resources areas, including the assessment and protection of water quality, floodplain management, groundwater analysis, watershed and wetlands protection, water resources management planning, and fisheries management. Servicewide funding will continue to support park projects to assess and restore water quality, map and restore wetlands, conduct hydrologic investigations, and carry out watershed and fisheries management planning. In FY 2001, the NPS anticipates responding to nearly 500 park technical assistance requests to address a wide range of water resource concerns identified by park managers. Examples of these technical assistance activities include assistance in the development of an annual operating plan for dams on the Lower Colorado River, affecting four park units; planning for restoration of the Elwha River in Olympic National Park; the evaluation of groundwater issues at Cape Cod National Seashore; and assessments of water quality concerns at Biscayne National Park, Yellowstone National Park, Delaware Water Gap National Recreation Area, and Lake Mead National Recreation Area.

Under the Oil Pollution Act of 1990 (OPA) and the National Contingency Plan, the NPS is continuing actions to protect park resources following the release of oil or hazardous chemicals, often from sources outside the parks. The NPS is also conducting damage assessments and restoration for natural resources injured in such incidents as part of the Secretary's natural resource trust responsibilities under Federal law. These recoveries support restoring damaged resources in a variety of park areas, including damages recovered from a pipeline related oil spill that forced closure of the U.S.S. *Arizona* Memorial to construct a shoreline protection system at the park's visitor center and replace the visitor center's boat dock; recovery from an oil pipeline spill at George Washington Memorial Parkway that financed construction of viewing platforms and trails at Great Falls Park and nature trails at Dyke Marsh along the parkway, and visitor facilities at Fletcher's boathouse (an area within C&O Canal National Historical Park). Oil spilled from a tanker collision in the Gulf of Mexico resulted in oil and tar being deposited on the beaches of Matagorda Island National Wildlife Refuge, Mustang Island State Park and Padre Island National Seashore, closure of their beaches to accommodate the resulting cleanup led to a settlement agreement providing for dune restoration in NPS administered areas in addition to other funds recovered for use by other State and Federal agencies whose resources were injured by the spill.



Coral reef restoration Biscayne National Park

These activities support the achievement of several of the Service's long-term goals including Ia1: Disturbed Lands/Exotic Species, Ia2: Threatened and Endangered Species, Ia3: Air Quality, Ia4: Water Quality, Ib4: Geological Resources, and park-specific long-term goals (not shown below) Ia2x: Native Species, and Ib0: Park-specific goals not aggregating to Servicewide goals (Natural Resource Data Management and Distribution).

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Performance Goals

Long-term Goal Ia1	By September 30, 2005, 10.1% of targeted parklands, disturbed by development or agriculture as of 1999 (22,500 of 222,300 acres), are restored; and Ia1B -- exotic vegetation on 6.3% of targeted acres of parkland (167,500 of 2,656,700 acres) is contained.
Annual Goal Ia1	By September 30, 2002, 4% of targeted parklands, disturbed by development or agriculture, as of 1999, are restored; and exotic vegetation on 2.5% of targeted acres of parkland is contained.
Long-term Goal Ia2	By September 30, 2005, 19% of the 1999 identified park populations (84 of 442) of federally listed threatened and endangered species with critical habitat on park lands or requiring NPS recovery actions have an improved status; and Ia2B -- an additional 21.5% (94 of 442) have stable populations.
Annual Goal Ia2	By September 30, 2002, 15.2% of the 1999 identified park populations of federally listed threatened and endangered species with critical habitat on park lands, or requiring NPS recovery actions have an improved status; and an additional 21.3% have stable populations.
Long-term Goal Ia3	By September 30, 2005, air quality in 70% of reporting park areas has remained stable or improved.
Annual Goal Ia3	By September 30, 2002, air quality in 63% of reporting park areas has remained stable or improved.
Long-term Goal Ia4	By September 30, 2005, 85% of 288 park units have unimpaired water quality.
Annual Goal Ia4	By September 30, 2002, 70% of 288 park units have unimpaired water quality.
Long-term Goal Ib4	By September 30, 2005, geological processes in 54 (20% of 270) parks are inventoried and human influences that affect those processes are identified.
Annual Goal Ib4	By September 30, 2002, geological processes in 25 (9% of 270) parks are inventoried and human influences that affect those processes are identified.

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FY 2002 BUDGET REQUEST

	2002 Budget Request	Program Changes (+/-)																										
▪ Natural Resources Management \$(000)	151,244	+20,488																										
<p>The FY 2002 request for Natural Resources Management is \$151.244 million, which represents an increase of \$22.355 million over the FY 2001 enacted level. The FY 2002 proposed programmatic increase of \$20.488 million to Natural Resources Management activities includes:</p> <table><tr><td></td><td>\$(000)</td></tr><tr><td>▪ Streamlining</td><td>-412</td></tr><tr><td>▪ Inventory and Monitoring Programs - Vital Signs</td><td>4,200</td></tr><tr><td>▪ Native and Exotic Species Management</td><td>2,400</td></tr><tr><td>▪ Establish Learning Centers</td><td>1,800</td></tr><tr><td>▪ Natural Resource Preservation Program</td><td>4,000</td></tr><tr><td>▪ Expand Air Quality Monitoring and Related Activities</td><td>2,600</td></tr><tr><td>▪ Establish Resource Protection Fund</td><td>300</td></tr><tr><td>▪ Implement Resource Protection Act</td><td>500</td></tr><tr><td>▪ Expand Water Resources Protection and Restoration</td><td>1,000</td></tr><tr><td>▪ Exotic, Threatened and Endangered Species and Subsistence Management – Parks</td><td>2,900</td></tr><tr><td>▪ Bison Monitoring at Yellowstone National Park</td><td>1,200</td></tr><tr><td>Total</td><td>20,488</td></tr></table>				\$(000)	▪ Streamlining	-412	▪ Inventory and Monitoring Programs - Vital Signs	4,200	▪ Native and Exotic Species Management	2,400	▪ Establish Learning Centers	1,800	▪ Natural Resource Preservation Program	4,000	▪ Expand Air Quality Monitoring and Related Activities	2,600	▪ Establish Resource Protection Fund	300	▪ Implement Resource Protection Act	500	▪ Expand Water Resources Protection and Restoration	1,000	▪ Exotic, Threatened and Endangered Species and Subsistence Management – Parks	2,900	▪ Bison Monitoring at Yellowstone National Park	1,200	Total	20,488
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<p>Justifications for these program changes are included at the end of this subactivity’s presentation.</p>																												

C. Everglades Restoration and Research FY 2001 Estimated Program and Anticipated Accomplishments

Enacted: \$10,007,000

The Department of Interior established the Critical Ecosystem Studies Initiative (CESI) to support science and research programs focused on meeting the goals of the South Florida Ecosystem Restoration Task Force. This program supports a science partnership between thirty Federal, State, local, and Tribal governments to meet a set of systemwide science objectives needed for South Florida ecosystem restoration, developed by an interagency science subgroup of the South Florida Ecosystem Restoration Working Group. The program was initially designed to accelerate the completion of scientific research and modeling studies to guide development of a restoration plan for the Everglades and to then provide a scientific basis for its implementation. The goal has been to increase our understanding of the key elements of the pre-drainage landscape and associated animal communities, how these ecosystem components have been altered by the changing hydrologic regime, and to develop tools to guide changes to the Central and South Florida Project to restore more natural ecosystem functioning.

Established in 1997, the CESI program has added significantly to information needed for hydrological and ecological simulations of water management changes and the impacts on the South Florida ecosystem. In 2001, two

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water quality programs were combined, merging the Tribal water quality program into the Water Quality Improvement Technology program. A new program area was added in FY 2001 to address environmental economics and the effects of restoration on social issues. The passage of the Comprehensive Everglades Restoration Plan (CERP) and its implementation in FY 2001 has added importance to the role of the Critical Ecosystem Studies Initiative effort in providing a sound scientific basis for the next step, converting concepts and plans in water management into projects that result in Everglades restoration. While most of the science objectives and priorities associated with CESI are closely related to those found in the restoration plan, information needs met by the Critical Ecosystem Studies Initiative will now focus on specific critical water management projects and their effects on wetland and coastal natural resources. During the design and evaluation phases of projects in FY 2001 through FY 2004, CESI will support the predictive modeling, evaluation of potential restoration success, and establish ecosystem recovery evaluation programs, required by the adaptive assessment process. In FY 2001, the program sought and received permission to reallocate \$1.697 million to meet immediate staffing needed for successful implementation of the restoration plan. To accomplish this, science objectives in three program areas will be deferred until FY 2002 to permit timely participation in the restoration plan project schedule. In following years, support for CERP implementation will come from a separate budget request.

The Critical Ecosystem Science Initiative for Everglades restoration as presented in the table and described below summarizes the FY 2001 program and the program at the FY 2002 base level.

Everglades Restoration	FY 2001	FY 2002
Comprehensive Everglades Restoration Plan Support	\$2,497,000	\$2,497,000
Critical Ecosystem Science Initiative:	[6,194,000]	[4,000,000]
Ecosystem Restoration Planning	563,400	300,000
Ecosystem Science Planning and Peer Review	328,700	170,000
Ecological Modeling-Refinement and Applications	844,700	425,000
Selective High Density Topographic Surveys	599,100	350,000
Ecological Processes and Indicator Species	977,100	650,000
Landscape Patterns, Processes, and Modeling	300,000	325,000
Hydrologic Modeling for Everglades Restoration	748,800	350,000
Coastal and Estuarine Ecosystems	390,600	325,000
Contaminants and Biogeochemical Processes in Inland and Coastal Systems	250,000	325,000
Water Quality Improvement Technology and Monitoring	563,100	346,000
Invasive Species Control Strategy	89,800	89,000
Science Information Synthesis and Dissemination	269,600	180,000
Water Resources Planning, Impact, and Mitigation Assessment	269,100	165,000
Subtotal	8,691,000	6,497,000
South Florida Ecosystem Restoration Task Force	1,316,000	1,316,000
Total	\$10,007,000	\$7,813,000

Ecosystem Restoration Planning - In July of 2000, the task force prepared and submitted to the Congress, a Strategic Plan for Restoring the South Florida Ecosystem. With the submission of this strategic plan to the Congress, the South Florida Ecosystem Restoration Task Force Office is designated to serve as the implementation, tracking and reporting source for all restoration activities carried out under the umbrella of the strategic plan. The three principle restoration goals are as follows: Ecosystem Restoration Goal 1: Get the Water Right, Goal 2: Restore, Preserve and Protect Natural Habitats and Species, Goal 3: Foster Compatibility of the Built and Natural Systems. The goal 3 component of the strategic plan in its present form requires additional work to fully delineate the four elements requested by the Congress. Recognizing the need for additional work on goal 3, the task force established a Goal 3 Steering Committee. This steering committee is tasked with facilitating refinement of goal 3 for the strategic plan revision due to the Congress in FY 2002. This team will identify measurable sub-goals and provide language that describes the implementation process. The committee will also outline objectives that include indicators of success and also identifies projects that will be used to monitor performance and track accomplishments for this goal area.

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The work activities undertaken will consider outcomes of current revisions to the State of Florida's growth management programs focusing on (1) the interrelationship between the natural and built systems, (2) Federal and State government policy guidance for environmental justice, (3) the task force's strategy for sustainable agriculture, and (4) restoration projects that provide water management benefits to the urban and rural components of the built environment that are compatible with the needs of the natural system.

Ecosystem Science Planning and Peer Review - A key component of the South Florida Ecosystem Restoration initiative is the regular convening of outside review of the science program and its projects. The South Florida Ecosystem Restoration Task Force, its interagency Working Group and Science Coordination Team will continue to review and coordinate scientific investigations and conduct independent peer reviews, workshops and symposiums on South Florida restoration-related topics. The primary and most important work that is underway under this program category is the National Academy of Sciences, Committee on Restoration of the Greater Everglades Ecosystem which is charged with reviewing the science effort and provide advice to the task force. The panel will provide quarterly reports to the task force and conduct additional detailed studies as assigned and approved by the task force. This interagency planning and implementation process helps to design the needed long-term monitoring and research studies and the development of predictive models that guide us on the selection of alternative management plans, proposed implementation actions, and the specific engineering design for numerous ecosystem restoration initiatives. We are arranging a cost-sharing program for other task force member agencies to contribute funding in support of the National Academy of Science panel beginning in FY 2002.

Ecological Modeling – Expansion, Refinement and Applications - During 1998 and 1999, initial ecological models, particularly the Across Trophic Level Systems Simulation (ATLSS) models, served as important predictive tools used by resource managers in evaluating various restoration alternatives. These models have been used extensively for regional scale evaluations for the Central and South Florida Restudy, as well as more site-specific applications of endangered and keystone species for projects such as the Modified Water Deliveries and Experimental Water Delivery projects for Everglades National Park. These evolving predictive tools will expand our ability to link the results of hydrologic and water quality modeling with predictions of fish, wildlife, and vegetative changes at the individual, community, and landscape level. In FY 2001, several of the current generation of ATLSS models will be redesigned for use at the local agency level for improved impact assessment capability, and a new interface will be developed to permit internet-based access of simulation output and data sets by resource management agency scientists. Additional research will be initiated in FY 2001 and continued in FY 2002 to refine the linkage between vegetative production and succession, water quality, and hydrological models as they relate to restoration project design and evaluation. [see Landscapes, Ecological Processes/Indicator Species, Coastal Ecosystems, Hydrologic Modeling].

Selective High Density Topographic Surveys – High density topographic surveys provide land-surface elevation information essential to developing restoration alternatives, assessing and refining information on specific restoration actions/works, linking surface elevation and hydrologic modifications to ecosystem response, and for applications of ecological and physical models. Although many areas were surveyed in fiscal years 1997 and 1998, much of the western Everglades, Big Cypress area, the Greater Everglades systems, and the northern Everglades need additional data for accurate hydrological modeling. Completion of map quadrangles in the Everglades Flamingo area is expected in FY 2001, with local scale high detail mapping conducted to support ecological modeling of tree island habitats and Cape Sable seaside sparrow habitats to meet the science information needs of project impact assessment. In addition, as specific restoration projects are designed and evaluated in FY 2001 and FY 2002, site-specific elevation data will be necessary to more closely link ecosystem response to changes in hydrologic conditions that result from planned project operations.

Ecological Processes and Indicator Species – Currently, this program area has provided data and ecological process information for development and refinement of the ATLSS ecological models, supports research to establish the role of hydrology in defining Everglades plant and animal communities. Research in FY 2001 will continue in this topic and will also focus on use of indicator species in adaptive assessments. Analysis of long-term monitoring data for selected faunal species and plant communities has shown that some of these species/communities make suitable ecological

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indicators of environmental alterations, because of their specific roles in the ecosystem or their sensitivity to anthropogenic changes. Similarly, ecological process studies have continued to focus on the abundance, distribution, and diversity patterns of key plants and animals and their environmental forcing factors, that act across the Everglades landscape. With the data collected by completed and ongoing studies in FY 2001 and FY 2002, a well-defined set of science-based performance measures will be available as an initial set of management and results evaluation tools during the period of restoration implementation. Much of the ecological process and species data serve as the foundation for the ATLSS predictive ecological models, where specific ecological models of indicator species have been developed and used for assessing alternatives for restoration. These include wading birds, the Florida panther, the Cape Sable seaside sparrow, the snail kite, the white-tailed deer, and the American alligator. Research in FY 2001 is necessary to complete current studies, which include invertebrates, fish, and wading birds. Continued research is also needed to link ecological patterns and processes to proposed water management project operations that act across the Everglades landscape. To meet the needs of the restoration plan, a region-wide monitoring program will be developed for implementation in FY 2002 and FY 2003. Permanently established geo-referenced sampling stations will be established in the two major drainages within Everglades National Park, Shark Slough and Taylor Slough, and in the adjacent and the overdrained Rocky Glades and the fire-prone Long Pine Key. In FY 2001, seven ongoing projects concerned with the ecology of threatened or endangered species will be continued, including the Cape Sable seaside sparrow and the American Alligator. Long-term population monitoring studies for both indicator and endangered species will be initiated in FY 2001 and FY 2002 for application in evaluation of restoration success and adaptive assessment of as the restoration plan is implemented.

Landscape Patterns, Processes, and Modeling – The purpose of this program is to link the mosaic of Everglades habitats on a landscape scale to permit an evaluation of large-scale environmental changes on interacting populations and communities of plants and animals. In FY 2001, a large-scale mangrove ecology project will be completed, providing information on the role of water management on coastal mangrove forests. Research concerned with hydrology and patterns of wetland vegetation will be continued in Shark River Slough and Taylor River Slough to identify long-term patterns in plant communities affected by hydrologic change. Two projects to examine a key component of the ecosystem, tree island habitat, will be continued in the northern and southern Everglades and will provide data on the effects of water elevation in sustaining this important landscape element. Research to determine the effect of hydrology on wetland peat and marl soil formation will be initiated as part of the effort to evaluate the effects of restoration plan projects on soil formation and loss, which determines water depths and hydroperiod on a large scale. Data from these projects will permit development of landscape scale models of changes in vegetation communities, soil formation, and critical habitats that will be affected by restoration plan project design and operation. Additional research will be needed to link indicator fauna with these landscape scale elements for evaluation of water management plans and establishing relative probabilities of accomplishing defined ecosystem restoration goals. Development of a landscape-scale vegetation community simulation model, planned for FY 2001, will be deferred until FY 2002 because of reallocation of program funds for support of CERP implementation by the Department of the Interior.

Hydrologic Modeling for Everglades Restoration - The ability to accurately predict changes in water elevation and duration of wetland flooding across the South Florida landscape has been a key issue facing water and natural resource planners and managers. When CESI was initiated in FY 1997, the program supported development of the Southern Inland Coastal Simulation in an effort to understand water flow into northeast Florida Bay, a complex hydrological process. These included canal and wetland flow and water transport interaction, effects of wind on surface water flows, and vegetation resistance to flow, surface water and groundwater interactions, and freshwater discharge to Florida Bay. As research and modeling for the southeastern Everglades is completed, work will shift to the western watershed and western coastal areas. Research initiated in FY 2001 and continued in FY 2002 will address the relationship between critical wildlife habitat and tree island habitat in the southern Everglades. Both will be directly affected by the water management projects specified in the restoration plan that are currently in the design and evaluation phases. The information will provide the means to evaluate the impacts of restoration projects on important Everglades habitats.

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Coastal and Estuary Systems – Studies since FY 1998 have focused on seagrass diseases, effects of seagrass die-off and declining water quality on fish productivity, and trends in water quality patterns in Florida Bay. The program was expanded in 1999 to include the greater coastal and estuary ecosystems of South Florida. Most of the work has focused on seagrass, fish, and marine invertebrates that characterize the Florida Bay ecosystem to evaluate ecosystem responses to water management alternatives under varying climatic conditions. With the exception of the monitoring effort required for adaptive assessment, these research projects will be completed in FY 2001. With implementation of the restoration plan, science objectives in this program will be focused on defining the effects of changes in salinity in the bay as a result of water management operations. In FY 2001, a seagrass simulation model will be completed that will assist with assessing the impacts of salinity change on seagrass in Florida Bay. New studies in FY 2001 through FY 2002 also include work in Biscayne Bay to evaluate the effects of water management plans on the quantity and quality of water entering the bay and its impacts on the coastal and bay ecosystem. Development of performance measures and ecological monitoring in Biscayne Bay, planned for FY 2001, will be deferred until FY 2002 because of reallocation of program funds for support of CERP implementation by the Department of the Interior.

Contaminants and Biogeochemical Processes in Inland and Coastal Systems – This research area has increased in importance since it is anticipated that as restoration projects come on-line, there will be a significant increase in urban and agricultural runoff flowing into the Greater Everglades ecosystem as additional water is sought for restoration of flows. A key strategy in providing water to natural areas will be that of wastewater re-use, which raises a number of issues concerning the influence of contaminants on flora and fauna in both the inland freshwater ecosystems and adjacent estuarine/coastal ecosystems. A contaminants risk assessment project has been initiated to evaluate the potential effects of pollution from agriculture, industry, and urban development on ecosystem restoration goals. The effort is comprised of three phases that first identifies pollution from existing reports and literature, establishes the presence of contaminant residues in soil, sediment, water, and wildlife, and then evaluates the relative hazard associated with exposure. In FY 2001, surveys for priority pollutants at over 40 sites in and around the southern Everglades, including Florida Bay and Biscayne Bay will be completed. Studies will also be initiated in FY 2001 and continued in FY 2002 to assess the sensitivity of native species to compounds identified in the survey. Additional work is planned to address gaps in data concerning the potential for bioaccumulation of contaminants and the use, fate, and degradation of pesticides in agricultural areas adjacent to the Everglades. Planned for startup in FY 2001, this work will be deferred until FY 2002 because of reallocation of program for support of CERP implementation by the Department of the Interior.

Water Quality Improvement Technology and Monitoring – In FY 2001, monitoring and water quality improvement studies initiated in FY 2000 will be continued. Evaluation of biological alternatives for water quality enhancement will continue through FY 2002, supporting pilot-scale studies conducted by the South Florida Water Management District. Additional research will be initiated in FY 2001 and FY 2002 to increase the efficiency of macrophyte and algal treatment systems in removal of phosphorus to a level suitable for use in supplying the natural system. The funds for FY 2001 will be used to continue water quality research and monitoring within the South Florida Ecosystem, with a priority to meet needs on Tribal lands. Since inflows to the Greater Everglades must meet very stringent water quality standards that protect these sensitive, nutrient depleted wetlands, continued monitoring and additional research is necessary to assess as well as enhance existing and emerging water quality improvement technologies. Additional research is necessary to assess management options for increasing efficiency of the macrophyte or combined macrophyte/algal treatment systems. Funding in FY 2002 will be needed to support water quality studies on forested wetlands, research and small-scale pilot projects to refine construction and operation of biological treatment for improvement of water quality, particularly in support of ongoing Tribal water quality improvement initiatives.

Invasive Species Control Strategy - Exotic plants impact over 1,000,000 acres of southern Florida's natural lands. Without an integrated plan to control these exotic species, recovery of the protected species may not be possible. Exotic species such as melaleuca, Brazilian pepper, Old World climbing fern and Australian pine are all species that have been shown to replace and degrade the quality of native habitats that are essential for listed all native organisms, especially rare species such as the Florida scrub-jay, Florida panther, Key deer and sea turtles. State, Tribal, Federal and local governmental programs are addressing new facets of the invasive control program through

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biological, chemical and mechanical control mechanisms. A unified strategy for the control of exotic species is essential for the recovery of threatened and endangered species as well as the success of the South Florida restoration. In FY 2001, a multi-agency implementation plan for the exotic plant management strategy was completed and improvements were made to the integration of the various agency exotic plant control programs. Funding in FY 2002 will be used to develop a Weed Risk Assessment and Detection System, Rapid Assessment/Rapid Response System, Weed Web Information System, and to guide the implementation of the strategy and continue research efforts, which will assist the task force in the development of a strategy for the control of exotic animals.

Science Information Synthesis and Dissemination – This program was established to facilitate access to data and information collected during the ecosystem restoration process. Work in 2001 will continue development of the database access interface for better accessibility to restoration-related data sets from other State and Federal agencies funded outside of the Critical Ecosystem Studies Initiative. Work will be initiated in FY 2001 and continued in FY 2002 to compile historical data and inclusion in databases for evaluation of long-term trends in populations.

Water Resources Planning, Impact, and Mitigation Assessment - An integral part of restoration plan project design and evaluation, the National Environmental Policy Act, various Water Resource Development Acts, and State, regional and local processes require social impact assessment and public engagement. In FY 2001, a study will be initiated to evaluate the economic effects of restoration plan implementation. With changes in water management in South Florida, activities associated with flooding, groundwater elevation, and land use in the vicinity of the restored system will be affected. For example, a key issue will be agricultural productivity in land adjacent to the Everglades as groundwater levels change as a result of the restoration plan. Additional study will be needed to evaluate the socio-economic costs and benefits as restoration projects are formulated in FY 2001 and FY 2002.

The South Florida Ecosystem Task Force Office is funded at \$1.316 million in FY 2001. This level will be continued in FY 2002.

South Florida Ecosystem Restoration

Performance Goal	Protect the Environment and Preserve Our Nation's Natural and Cultural Resources
Long-Term Goal 1.2	Maintain Healthy Natural Systems
	By 2040, the South Florida Ecosystem Restoration Task Force will restore the hydrologic functions of wetland, marine, and groundwater systems within the South Florida ecosystem.
	By 2020, the South Florida Ecosystem Restoration Task Force will acquire an additional 550,000 acres of land for habitat protection.

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FY 2002 BUDGET REQUEST

	2002 Budget Request	Program Changes (+/-)
▪ Everglades Restoration and Research \$(000)	10,869	+853
The FY 2002 request for Everglades Restoration and Research is \$10.869 million, which represents an increase of \$0.862 million over the FY 2001 enacted level. The FY 2002 proposed programmatic increase of \$0.853 million to Everglades Restoration and Research activities includes:		
	\$(000)	
▪ Critical Ecosystem Science Initiative	-2,194	
▪ Comprehensive Ecosystem Restoration Program	3,047	
Total	853	
Justifications for these program changes are included at the end of this subactivity’s presentation.		

D. Cultural Resources Applied Research FY 2001 Estimated Program and Anticipated Accomplishments

Enacted: \$17,706,000

The National Park Service conducts a program of basic and applied research in accord with current scholarly standards, to support planning, management, and interpretation of park cultural resources. The principal goals of the mission-oriented research are to:

- identify, evaluate, document, inventory, and determine the significance of cultural resources;
- acquire a systematic and fully adequate park information base;
- develop appropriate methods and technologies to inventory, document, monitor, preserve, protect, and maintain cultural resources;
- ensure appropriate treatment and interpretation of cultural resources; and
- work with partners in the academic and preservation communities to ensure and acquire the knowledge base necessary to meet NPS stewardship and education goals.

The lack of basic resource information is a threat to the resources and impedes the Service's ability to meet these goals. Detailed, systematic data about resources and their preservation and protection needs are critical to effective management of the resources.

Cultural resources research responsibilities include: (1) completing historic resource studies, park administrative histories and other historical studies, (2) providing for National Register of Historic Places documentation, (3) preparing historic structure reports to guide park management in treatment and use decisions, (4) preparing cultural landscape reports to determine appropriate treatment and use, (5) providing basic archeological identification, evaluation, and documentation of resources in all parks and providing National Register listing, as appropriate, (6) completing museum collection management plans, collection storage plans, and collection condition surveys, (7) completing documentation (cataloging) for all museum objects, (8) completing basic ethnographic surveys and field studies in parks, and (9) completing ethnographic overviews and assessments to identify relationships with Native Americans and other ethnic groups associated with park resources.

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Inventory and Evaluation Systems

Servicewide cultural resource inventory systems manage and maintain data obtained through research. These systems provide the basic information necessary for park planning and development proposals, including data necessary to comply with archeological, environmental, and historic preservation mandates. The inventory systems also provide information essential to selecting appropriate and cost-effective strategies for managing, preserving, maintaining, interpreting, and providing public access to cultural resources.

Current inventory systems are Cultural Landscapes Inventory, Cultural Resources Management Bibliography, Archeological Sites Management Information System, Ethnographic Resources Inventory, List of Classified Structures, and National Catalog of Museum Objects. A number of the applied cultural resource activities are related to building and improving these inventory systems.

Archeological Resources

The National Park System includes an astonishing number and variety of archeological resources--from Cliff Palace and other ancient dwellings, spectacular and humble, in the southwest, to the first permanent English settlement at Jamestown. The archeology program supports systematic research to locate, evaluate, document, report on, and interpret archeological resources; to nominate archeological properties to the National Register of Historic Places; and to recommend strategies for their interpretation, management, preservation, and protection. These activities contribute to NPS achievement of long-term goals Ib2A and Ia8 (Archeological Resources).



Fort Frederica National Monument, an 18th century archeological site (Photo courtesy Ed Matthews)

The automated Archeological Sites Management Information System (ASMIS) used to report the baseline data in FY 1997 was estimated to have a data entry backlog totaling 60 percent of the known sites. A major focus in FY 2002 is to include and update systematic and consistent data for all known NPS archeological sites. As of the end of FY 2000, approximately 20 percent of known sites needed such data entry and updating. This effort includes recording standard information about each site systematically and electronically so that park, regional, and national management databases can be utilized for budget and management control. In 2001, significant effort will be focused on providing efficient access to key ASMIS data for NPS archeologists and managers.

The goals of the park archeology program are carried out through a variety of funding programs, the largest and most important of which is the Cultural Resources Preservation Program. In FY 2000, Servicewide funding for the archeological resources inventory was increased to \$2.4 million. The numbers that appear for the performance goals below represent information received as of December 1, 2000, from a Servicewide call for data.

Performance Goals

Long-term Goal Ib2A	By September 30, 2005, the 1999 baseline inventory and evaluation of each category of cultural resources is increased by 35% . [From the FY 1999 baseline of 48,188 to 65,054]		
Annual Goal Ib2A	By September 30, 2002, the number of sites recorded in the Archeological Sites Information Management System is increased by 17%. [From FY 1999 baseline of 48,188 to 56,621]		
Archeological Resources Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate

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Recorded sites with electronic records in ASMIS	52,198	53,810	56,621
Percent increase from the FY 1999 baseline for the number of sites recorded in ASMIS	8.3%	10%	17%

Archeological Resources Workload Factors	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Estimated archeological sites	1,500,000	1,500,000	1,500,000
Recorded archeological sites (ASMIS and paper)	63,000	64,000	65,000
Archeological sites listed on the National Register of Historic Places	8,175	8,175	8,175
Acres of park land with some level of archeological investigation. [In FY 1999 and FY 2000, the annual acreage investigated under the national archeological inventory program is about 30,000 acres.]	7,285,000	7,305,000	7,335,000

Ethnographic Resources

Ethnography focuses on the identification and documentation of present-day people with long-term associations to existing or proposed parks, and on the cultural and natural resources that they invest with traditional cultural meaning. These resources include mountaintops, baptismal sites, urban neighborhoods, subsistence areas, and other places and landscapes that define a group's ethnic history and identity. Data on these resources and the people who value them are required for culturally appropriate and effective resource management and planning, and for establishing mutually beneficial alliances with communities associated with parks.

The national strategy for inventorying ethnographic resources, designed in FY 1998, is used to identify, evaluate, and document ethnographic resources. Ethnographic records are now being entered into the Ethnographic Resources Inventory (ERI) database. The baseline number of ethnographic records was set in FY 1999.

Funding for the Ethnographic Resources Inventory is provided by the Cultural Resources Preservation Program. Additional funding may be provided by other programs that affect ethnographic resources.

Differences in numbers for the performance goals between the Servicewide ERI database and NPS park unit data, provided elsewhere, is the result of the newly established programmatic approach to identifying ethnographic resources.

Performance Goals

Long-term Goal Ib2E	By September 30, 2005, the number of ethnographic resources entered into the Ethnographic Sites Inventory is increased by 634.5%. [From FY 1999 baseline of 400 to 2,938]
Annual Goal Ib2E	By September 30, 2002, the number of ethnographic resources in the Ethnographic Resources Inventory is increased by 317%. [From FY 1999 baseline of 400 to 1,669]

Ethnographic Resources Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Number of ethnographic resource electronic records in Ethnographic Resources Inventory.	947	1,246	1,669

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Historical Research

A fundamental tenet of NPS historic preservation activities is that adequate research in support of planning and legal compliance precedes all final decisions about the treatment of cultural resources. The National Park Service's history research program is designed to provide parks with research necessary to support informed decision-making and interpretive activities. A fundamental document in that process is the historic resource study, which examines the tangible historic resources of a park and assesses their significance within larger historical contexts. Historic resource studies identify and evaluate historic resources providing sufficient information so that decisions regarding their management and interpretation can be made with authority. Baseline research also occurs with the development of administrative histories. These studies examine the institutional history of a park as a unit of the National Park System presenting an assessment of its establishment and management decisions that affected its development.

In addition, the results of this historical research serve the American public by enriching park interpretive programs and contributing to the public understanding of history. Parks that completed or initiated historic studies during FY 2000 include Mississippi National River and Recreation Area, Sleeping Bear Dunes National Lakeshore, Death Valley National Park, Antietam National Battlefield, Boston National Historical Park, Ebey's Landing National Historical Reserve, Hot Springs National Park, and Katmai National Park. In FY 2001 and FY 2002, a total of \$886,000 will be allocated to fund an estimated eighteen historic resource studies from the historic resource study priority list.

Performance Goals

Long-term Goal Ib2F	By September 30, 2005, 112 parks have historical research that is current and completed to professional standards [29% of 384].
Annual Goal Ib2F	By September 30, 2002, 55 parks have historical research that is current and completed to professional standards [14.3% of 384].

Historical Research Workload Factor	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Number of parks with current Historic Resource Studies and Administrative Histories	17	36	55

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Cultural Landscapes

Cultural landscapes range from large rural tracts, such as the Gettysburg battlefield and the Blue Ridge Parkway, to small designed landscapes, such as Frederick Law Olmsted's home and studio. The National Park Service defines a cultural landscape as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values." Cultural landscapes provide the physical environment associated with historical events and reveal aspects of our country's origins and development through their form, features, and use. As of the end of FY 2000, a total of 2,743 cultural landscapes have been identified.



Fruita Rural Historic District, Capital Reef National Park

Applied research defines the characteristics, features, values, and associations that make a landscape historically significant and provides the information necessary for park management decisions concerning treatment and use of cultural landscapes. This information is collected, analyzed, and organized through a variety of means, discussed below.

- *Cultural Landscapes Inventory* - The Cultural Landscapes Inventory (CLI) documents the location, historical development, and current management of cultural landscapes. Landscapes included in the CLI are either eligible for the National Register or are to be treated as cultural resources by law, policy, or decisions reached through the park planning process. The inventory effort is usually conducted by the regional or support office, cultural resource center, or under contract. In FY 2001, approximately \$1.0 million will be allocated to continue inventory work and document management information concerning significance, threats, impacts, condition, use, and approved treatments.
- *Cultural Landscape Report* - The Cultural Landscape Report documents research concerning condition, causes of deterioration, necessary treatments, and treatment alternatives, as well as the development history or evolution of a landscape. It is the primary guide for park management decisions concerning landscape use and treatment. Cultural landscape reports are usually prepared by the regional or support office, cultural resource center, or under contract.

The results of the above applied research efforts contribute to meeting the following NPS goals.

Performance Goals

Long-term Goal Ib2B	By September 30, 2005, cultural landscapes inventoried and evaluated at Level II are increased by 89.8% (From 1999 baseline of 137 to 260).
Annual Goal Ib2B	By September 30, 2002, cultural landscapes inventoried and evaluated at Level II are increased by 35% (From 137 to 185).

Cultural Landscapes Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Number of cultural landscapes inventoried at Level II on the Cultural Landscapes Inventory.	152	160	185

Historic and Prehistoric Structures

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Park historic structures include Independence Hall, Fort Sumter, log cabins at Denali National Park and Preserve, the Statue of Liberty, and the sailing ship *Balclutha* at San Francisco Maritime National Historical Park, as well as prehistoric structures such as Balcony House at Mesa Verde National Park. Historic structures are “constructed works...consciously created to serve some human activity.” They include buildings, monuments, millraces, canals, ships, railroad locomotives, rolling stock, fences, defensive works, temple mounds, outdoor sculpture, and ruins. Historic and prehistoric structures and the events surrounding them are key park cultural resources, forming the basis for 232 park units, and are integral to many other parks. By September 30, 2000, 25,507 structures in 373 parks of the estimated 26,000 to 27,000 structures in the 386 parks have been identified.



Ferryboat Eureka, San Francisco Maritime National Historical Park

Applied research provides information about treatment and use of historic structures for park management. Research focuses on three broad aspects of a historic structure: the historical, technical, aesthetic, or scientific associations; the developmental history or evolution; and the nature, performance, and capability of its material and systems. This information is organized as discussed below and contributes to meeting the NPS goal in the table below.

- *List of Classified Structures* - The List of Classified Structures (LCS) is a computerized inventory that documents the location, historical development, and current management of historic and prehistoric structures and is used as an analytical tool at all organizational levels for budgeting, scheduling, and program development. Structures included are either eligible for the National Register or are to be treated as cultural resources by law, policy, or decisions reached through the park planning process. The List of Classified Structures provides data to other automated systems such as the facility management system and is usually conducted by the regional or support office or cultural resource center staff. In FY 2001, approximately \$250,000 will be allocated to update 17.4 percent of the basic management information on the LCS concerning significance, threats, impacts, condition, use, and approved treatments and to add about 500 structures.

- *Historic Structure Report* - The Historic Structure Report documents research concerning condition, causes of deterioration, necessary treatments, and treatment alternatives as well as the developmental history or evolution of a structure. It is the primary guide for park management decisions concerning structure use and treatment. Historic structure reports are usually prepared by support office or cultural resource center staff, or under contract.

Performance Goals

Long-term Goal Ib2C	By September 30, 2005, 100% of the historic structures on the 1999 List of Classified Structures have updated information (24,225 of 24,225).
Annual Goal Ib2C	By September 30, 2002, 50.1% of the historic structures on the 1999 List of Classified Structures have updated information (12,137 of 24,225).

Historic and Prehistoric Structures Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Percent of historic and prehistoric structures on the 1999 List of Classified Structures with updated information.	7.0%	33.4%	50.1%
Number of historic and prehistoric structures on the 1999 List of Classified Structures with updated information.	1,688	8,092	12,137

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Number of historic and prehistoric structures inventoried on the List of Classified Structures.	25,507	26,000	27,000
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Museum Collections

Museum collections from over 320 units of the National Park System are maintained in parks, at six NPS cultural resource centers, and at 142 non-Federal repositories. These collections date, in some instances, to the establishment of a park and comprise 29.4 million archeological, 3.5 million historical, 1.2 million biological, 179,000 paleontological, 29,000 ethnological, and 51,000 geological items, plus an additional 55.9 million archival and manuscript items. The collections include items ranging from historic furnishings in the home of John Adams, flags that flew over Fort Sumter, and Thomas Edison's handwritten notes on inventions, to botanical specimens from Yosemite and archeological items from Mesa Verde. These collections are important not only in their own right, but also because of their direct association with the nationally significant sites in the National Park System.

Parks acquire and document collections that support their mission and use those collections to increase public enjoyment and understanding of our heritage. This documentation leads to informed decisions about interpreting and managing park resources. For example, the drawings and photographs in the collection at Frederick Law Olmsted National Historic Site have enabled the park manager to make decisions about restoring the park's cultural landscape. The public has access to these collections through exhibits, interpretive programs, publications, the Internet, films and videos. In FY 2000, parks responded to over 47,000 public research requests and park visitors viewed nearly 332,000 objects on exhibit.

Park staff, cultural resource center staff, partners, or contractors provide direct collections management functions. Support office and cultural resource center staff provide planning and technical assistance. The national office provides policy and technical guidance and develops Servicewide systems. The National Park Service's *Museum Handbook* provides guidance on acquiring, documenting and cataloging collections; writing collection management plans; facilitating public use of and access to collections through research, exhibits, and the Internet; and lending collections to other museums for research and exhibit. Parks give priority to cataloging the collections backlog. In FY 2000, parks cataloged 2.7 million items, exceeding the target of 1.94 million. In FY 2001, and again in FY 2002, parks will catalog 1.94 million items and increase the cataloged inventory by five percent, making additional collections and data available for research, exhibits, and education. In FY 2000, collections growth outpaced cataloging so the percentage of the total collection that is cataloged increased.

The museum collections program supports mission goal Ib -- to contribute to knowledge about resources and associated values and to make management decisions about resources and visitors based on adequate scholarly and scientific information. The performance goal for FY 2002 is associated with long-term goal Ib2, increasing the inventory and evaluation of cultural resources. Specifically, parks propose to increase cataloged collections from a FY 1999 baseline of 37.3 million cataloged items to 42.5 million in FY 2002, making these resources accessible for the public's enjoyment and understanding of our cultural and natural heritage.



*Olmsted Archives has a multi-year project to catalog, preserve, and provide access to its historic collection.
Frederick Law Olmsted National Historic Site*

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Performance Goals

Long-term Goal Ib2D	By September 30, 2005, museum objects cataloged are increased by 34.3% [from 37.3 million to 50.1 million]
Annual Goal Ib2D	By September 30, 2002, increase the total number of museum objects cataloged by another 1.94 million.

Museum Collections Performance Information	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate
Percent of objects cataloged	61%	63%	65%
Percent of archives cataloged	32%	34%	36%
Number of backlogged objects cataloged	1,200,000	750,000	750,000
Number of backlogged archives cataloged	1,500,000	1,190,000	1,190,000

Servicewide Project Funding

The Cultural Resources Preservation Program (CRPP), funded at \$13.9 million in FY 2001, provides funding for research projects described in this section and the resource management projects described in the Cultural Resources Management section that follows. Research projects include archeological, ethnographic, and historical research; museum collections cataloging, research, and management plans; and historic structure reports and cultural landscape reports.

In FY 2001, in addition to base funds for a variety of projects, the program targets three initiatives to improve the availability of basic cultural resources information for resource management planning and interpretive purposes. These initiatives include \$2.4 million for the systemwide archeological inventory, evaluation, and documentation program; \$886,000 for historic resource studies; and \$1.1 million for the inventory and documentation of historic and prehistoric structures and cultural landscapes. In FY 2002, the CRPP will target \$500,000 for a fourth initiative to catalog the backlog of museum collections.

Examples of FY 2001 and FY 2002 projects include a cultural landscapes inventory and report for Devils Tower National Monument; an updated inventory of archival collections at Little Bighorn Battlefield National Monument with the assistance of tribal college students; cataloging a backlog of paleontological specimens at Badlands National Park; an ethnographic overview of the Kalaupapa community and present-day residents at Kalaupapa National Historical Park; and a historic structures report for Fort Point National Historic Site.

Applied research funds are also used for salary and support costs for specialists in Washington, D.C., regional and support offices, and centers for overall program development, coordination, and direction of the cultural resources research activities, and actual research. Limited funding and staff for cultural resources management at the park level make this arrangement the most efficient way to meet cultural resource management objectives in parks. Contracts and partnerships frequently augment NPS staff or add specialized expertise.

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FY 2002 BUDGET REQUEST

	2002 Budget Request	Program Changes (+/-)
■ Cultural Resources Applied Research \$(000)	17,895	-53
The FY 2002 request for Cultural Resources Applied Research is \$17.895 million, which represents an increase of \$189,000 over the FY 2001 enacted level. The FY 2002 proposed programmatic decrease of \$53,000 to Cultural Resources Applied Research activities includes streamlining.		
Justification for this program change is included at the end of this subactivity's presentation.		

E. Cultural Resources Management FY 2001 Estimated Program and Anticipated Accomplishments

Enacted: \$77,759,000

Cultural Resources Management is the preservation, maintenance, and protection of cultural resources to ensure that these resources receive the care necessary to perpetuate their existence. Although this work is done at the park level, it is supported also at the regional and Servicewide levels, especially for major preservation work. Lack of maintenance leads to accelerated deterioration, increased costs for repair, or the eventual loss of the cultural resource.

Ongoing assessments of park cultural resources indicate that archeological sites, historic and prehistoric structures, cultural landscapes, and museum collections are at risk because of various activities within and beyond park boundaries. These assessments have identified vandalism, lack of adequate storage and care of park museum collections, weather, and air pollution as problems. The assessments also indicate that resources can be impacted through inadequate attention to stabilization, maintenance, and repair of structures, landscapes, and museum collections, or failure to monitor changes in the resource and to correct improper uses.

Several requirements must be met to ensure adequate resource preservation, including (1) routine and cyclic preservation maintenance activities must be completed when needed, (2) the condition of resources must be inspected and monitored to obtain warnings of potential threats, to determine preservation requirements, or to take corrective action, (3) substantial preservation projects must be completed so that routine or cyclical preservation maintenance will perpetuate the cultural resource, and (4) professional standards and guidelines for operational or project work must be developed to conserve basic resources.

Archeological Resources

Archeological resources are susceptible to deterioration from natural forces of weather and erosion, looting or vandalism, and impact from park operations and visitors. Regular monitoring and maintenance is an important part of effective management. In FY 1997, the small baseline data set (approximately 4,300 sites with condition information) suggested that 55 percent of the sites with condition information were in good condition.

By FY 1998, the baseline data set increased to 12,737 sites.



Pueblo Bonito. Chaco Culture National Historical Park

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At the beginning of FY 2001, 37 percent (4,711 sites) were in good condition. The quality of this information on site condition needs to be evaluated and such a project is planned for FY 2001. One focus of activity in FY 2001 and FY 2002 will be to continue to assess and enter data on site condition from backlog and new site records. Also during these years, written guidance on the assessment of condition for archeological sites and for archeological site monitoring will be prepared and issued. The numbers for the performance goals below represent information received as of December 1, 2000, from a Servicewide call for data.

Performance Goals

Long-term Goal Ia8	By September 30, 2005, 50% of the recorded archeological sites with condition information are in good condition.
Annual Goal Ia8	By September 30, 2002, 44% of the recorded archeological sites with condition information in the Archeological Sites Management Information System are in good condition.

Archeological Resources Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Percent of archeological sites with condition information in the Archeological Sites Management Information System in good condition.	37%	42%	44%
Number of sites in good condition, reported in ASMIS. [Note: for FY 2001 and 2002 baseline shifts.]	4,711	7,980	9,240

To assist parks in protecting sites, information about archeological resources in parks is shared with professionals and the general public to increase knowledge about their significance. Active interpretation and outreach programs and increased public access to information foster greater appreciation of the need to protect and preserve archeological resources. The reports portion of the National Archeological Database (NADB) that contains entries for the National Park Service archeological reports was not updated in FY 2000. A major goal for FY 2001 is to update NADB-Reports and develop an online data entry capability. Information on archeological research in the national park units is also accessible electronically at <www.cr.nps.gov/aad>. Because partnership and park activities are combined, the workload statistics for professional and public daily access appear in the National Recreation and Preservation portion of the budget under Archeological Assistance.

Archeological Resources Workload Factors	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Number of incidents of archeological looting and vandalism in parks [Source: NPS ARPA report.]	333	316	300
Number of NPS archeological reports available online through NADB-Reports	6,270	6,400	7,000

Ethnographic Resources

Ethnographic research and consultation projects undertaken by NPS cultural anthropologists provide baseline data on park cultural and natural resources and on cultural groups with traditional associations to them. Data about peoples' ways of life and the resources they deem important in their ethnic history and identity contributes to the Ethnographic Resource Inventory and to the culturally informed decisions of park planners, managers and interpreters. Ethnographic work furthers the goal of inclusiveness by identifying little known or appreciated resources valued by Native American, African



Slave cabin, Magnolia Plantation, 1840's, Cane River Creole National Historical Park (NPS photo)

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American and other culturally diverse people. Studies such as the Ethnographic Overview and Assessment, and Traditional Use projects, are conducted in cooperation with American Indians, Alaskan Natives and other Native Americans, as well as with African Americans, and other peoples.

Ethnographic studies provide:

- identifications of tribes and other traditional stakeholders and documentation of ethnographic resources;
- strategies for consulting park-associated groups and data to inform planning, policy and guideline development;
- data for culturally-informed decisions about the use and protection of traditional park resources and landscapes in Alaska and elsewhere;
- identifications of culturally affiliated American Indians, Alaskan Natives and Native Hawaiians;
- reports on ways of life that enrich the libraries of the tribes and communities studied.

Ethnographers consult traditionally associated peoples, and provide technical assistance to parks and park-associated communities and tribes to help create mutually agreeable solutions about the use of ethnographically meaningful resources.

Ethnographic Resources Workload Factors	FY 2000 Estimate*	FY 2001 Estimate	FY 2002 Estimate
Number of training and other special projects that affect parks and community partners Servicewide	41	45	45
Number of planning, policy, guideline, or research documents reviewed Servicewide for ethnographic relevance	267	279	279
Number of Interior, NPS, and interagency workgroups advised	109	114	114
Number of Servicewide research projects to identify ethnographic resources**	100	106	106
Number of consultations with Native American and others Servicewide**	275	290	290

*These estimates reflect Ethnography factors Servicewide, unlike the previous years' figures that reported only National Center data. A methodology for consistent annual Servicewide reporting is presently under development and will be in place in FY 2001.

**These new workload categories reflect Servicewide factors, unlike the previous years' categories that considered only National Center activities.

Cultural Landscapes and Historic and Prehistoric Structures

The preservation and maintenance of approximately 26,000 to 27,000 historic and prehistoric structures and 2,800 cultural landscapes is performed by park personnel or contractors with technical training and experience in the special skills necessary to inspect, monitor, maintain, and preserve these resources in accordance with written procedures developed by resource specialists. Complex preservation work is conducted under supervision of professional staff from parks, regional or support offices, resource center staff, or under contract.

Facility Management System. Planning for maintenance requires detailed information about the nature and condition of the resources' respective features. Such information is obtained by systematic inspections and recording in the Facility Management System by park staff. Work includes general tasks such as scheduled inspections, condition assessments, monitoring, rejuvenative pruning, stabilizing prehistoric ruins, arboricultural services, repainting weathered historic buildings, vista management, replacing roofs, replacement of missing or deteriorated plant material, and monitoring structural movement.

The results of these resource management efforts contribute to meeting the following NPS goals.

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Performance Goals

Long-term Goal Ia5	By September 30, 2005, 50% of the historic structures on the List of Classified Structures are in good condition (13,500 of 27,000).
Annual Goal Ia5	By September 30, 2002, 46% of the historic structures on the List of Classified Structures are in good condition (12,420 of 27,000).
Long-term Goal Ia7	By September 30, 2005, 33.1% of the cultural landscapes on the Cultural Landscapes Inventory with condition information are in good condition (136 of 411).
Annual Goal Ia7	By September 30, 2002, 29.8% of the cultural landscapes on the Cultural Landscapes Inventory with condition information are in good condition (122 of 410).

Historic and Prehistoric Structures and Cultural Landscapes Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Percent of historic and prehistoric structures on the List of Classified Structures in good condition.	43.6%	45%	46%
Number of historic and prehistoric structures on the List of Classified Structures in good condition.	11,124	11,700	12,420
Percent of cultural landscapes on the Cultural Landscapes Inventory with condition information in good condition.	28.5%	28.7%	29.8%
Number of cultural landscapes on the Cultural Landscapes Inventory with condition information in good condition.	113	117	122

Museum Collections

Museum collections from over 320 units of the National Park System are maintained in parks, at six NPS cultural resource centers, and 142 non-Federal repositories. The collections include 32.9 million archeological, ethnographic and historical objects, 1.4 million biological, geological, and paleontological specimens, and 55.9 million archival and manuscript items. Some are individually significant, such as George Washington's campaign tent at Colonial National Historical Park. Others are recognized as part of a systematic scientific collection, such as the archeological collections from Chaco Culture National Historical Park. Others are important for their contribution to the interpretation of a site, such as the eyeshade in the office at Carl Sandburg National Historic Site.

Parks preserve and protect collections to make them accessible to current and future generations for enjoyment and knowledge. Parks monitor and control collection storage and exhibit environments, provide security and fire protection to minimize the risk of damage and loss, assess the condition of individual objects, and provide cleaning, stabilization and other treatments to collections. Park staff, cultural resource center staff, partners, or contractors provide direct collections management functions. Support office and cultural resource center staff provide planning and technical assistance. The national office provides policy and technical guidance and develops Servicewide systems.

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The National Park Service provides parks with collections preservation and protection guidance in the *Museum Handbook* and *Conserve O Gram*, which are also available to the general public and are popular resources in the Nation's museum community at large. Using the NPS Checklist for Preservation and Protection of Museum Collections (Checklist) parks assess museum storage and exhibits relative to professional standards for environment, security, fire protection, housekeeping and planning, taking corrective actions as needed.

In FY 2000, parks made many improvements to the preservation, protection and accessibility of museum collections, correcting over 2,100 checklist deficiencies. Cane River Creole National Historical Park conducted a condition survey of paintings to guide future preservation treatments. Sitka National Historical Park upgraded its museum storage and security. Pea Ridge National Military Park installed a fire suppression system to protect collections at the visitor center. In FY 2001, parks will correct nearly 1,200 deficiencies, focusing on fire safety procedural deficiencies that can be corrected at low cost. Acadia National Park will install a water mist fire suppression system in a new collection storage facility. Redwood National Park will improve storage for 150 linear feet of archival documents and 50,000 photographs.



New multi-park museum collections storage, Alaska Region (NPS Photo)

Through these and other activities, the museum collections program supports the achievement of mission goal Ia -- to protect, restore and maintain resources in good condition. Using the checklist, the NPS proposes to increase the number of standards met from the baseline of 63.4 percent in FY 1999 to 68.3 percent in FY 2002. As in FY 2001, emphasis will be on procedural deficiencies that can be corrected at low cost.

Performance Goals

Long-term Goal Ia6	By September 30, 2005, 71.8% of preservation and protection standards for park museum collections are met.
Annual Goal Ia6	By September 30, 2002, increase the standards met to 68.3% .

Museum Collections Performance Information	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Percent of conditions in park museum collections meeting professional standards	65.6 %	67.1%	68.3%
Number of preservation/protection deficiencies corrected	2,128	1,194	946

Interior Museum Property Program

The Interior Museum Property Program, in partnership with the NPS and other bureaus, develops and coordinates departmentwide museum policy and strategies. The program provides training and technical assistance to bureaus and offices in implementing museum property management plans for more than 110 million Interior museum property artifacts, specimens, and documents. In FY 2001, this program is funded at \$253,000.

In FY 2002, the department will provide eight training workshops, and will provide services to the growing number of customers who use collections for research, resource management, and exhibits. The DOI Museum Services Branch will provide technical assistance to bureaus addressing large backlogs in basic inventory of collections and other management deficiencies. This assistance is for 500 DOI facilities and more than 700 non-Federal institutions that partner with Interior bureaus to manage our collections. The outcome of these activities will be increased

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accountability for, and use of Department of the Interior museum collections in resource management, research, and public interpretation programs in the Department and its non-Federal partner institutions.

DOI Performance Goals – Interior Museum Property Program

Long-term Goal	By September 30, 2005, increase by 35% the number of museum objects available for research or public interpretation by improving our accountability for these resources, as measured against a baseline established in FY 1998 [36,376,000].
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Interior Museum Property Program Workload Factors	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Attendance at locations exhibiting cultural and museum objects [baseline 15,207,000]	15,457,000	16,119,000	16,424,000
Number of museum objects accurately inventoried [baseline 36,376,000]	45,877,000	47,800,000	48,500,000
Percentage of sites accessible via the Internet that meet standards [baseline 329 of 727 sites or 45%]	50%	52%	54%

Native American Graves Protection and Repatriation Act (NAGPRA)

The program contributes to the compliance of the NPS with the Native American Graves Protection and Repatriation Act. The goals are to (1) provide appropriate public notices, in the Federal Register or local newspapers, of intents to repatriate Native American human remains or cultural items to appropriate lineal descendents, Indian Tribes, or Native Hawaiian organizations, (2) help parks establish and maintain effective, continuing consultative relationships with affected American Indian Tribes, Alaska Natives, and Native Hawaiian organizations, (3) ensure that the requirements of the act are fully and promptly addressed, and (4) work collaboratively with affected groups to ensure that repatriation requests are addressed and Native American graves on parklands are protected or preserved in culturally appropriate ways. The program supports professional cultural affiliation studies conducted by field units, provides training and assistance to park staff in developing and maintaining consulting and collaborative relationships, develops professionally sound information needed to address legislative and policy requirements, and provides professional services in conducting consultations or providing assistance to affected groups. The FY 2001 budget of \$893,000 will provide base funding for Servicewide program coordination and activities at the national, regional, and park levels to achieve program goals. Of the total funding, \$595,000 is allocated to NPS regional offices, support offices, and parks for documentation, consultation, and investigations. A continuing goal for this program in FY 2001 and FY 2002 is to provide clear advice and recommendations to NPS managers regarding cultural affiliation, appropriate documentation and study, and repatriation.

Native American Graves Protection Act Workload Factors	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Number of notices of intent to repatriate and inventory completion reviewed and published	5	10	15

Vanishing Treasures

This program was established in FY 1998 to provide funds to reduce threats to ancient prehistoric and historic sites and structures in 41 parks of the western United States. The goal is to overcome backlogged preservation work by bringing the sites and structures to a condition in which they will be preserved by routine maintenance activities. The intent also is to increase NPS expertise and capability for maintaining these sites and structures. The cadre of skilled maintenance experts is aging and their numbers declining. There is insufficient growth to assure a steady stream of entry-level replacements. In 1997, the number of maintenance experts was estimated at ten full-time and 25 seasonal

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or part-time workers, and it was estimated that this workforce needed to be increased by approximately 150 full-time individuals.

The program includes implementation of immediate preservation treatment actions and documentation, planning and management of projects, and development and training of a skilled workforce. Parks, centers, or support offices, depending upon the nature of each project will have oversight. Project funds are managed at the regional level. Funds sufficient to rebuild the skilled workforce and other expertise are provided at the park level.

Funding increases of approximately \$1.0 million in FY 2000, and \$400,000 in FY 2001 were provided for the Vanishing Treasures program. Roughly half of the funds made available have been included in various park bases for hiring a skilled workforce. Remaining funds were distributed to parks to complete priority projects. The goals for FY 2001 and FY 2002 will be to continue addressing high priority preservation treatment projects, implement program management, and continue recruiting and training a permanent skilled workforce.

Preservation Treatment Needs. In FY 2000, the NPS applied \$815,000 to address eleven projects. In FY 2001, the NPS will apply \$975,000 to address 16 projects.

Project Management. In FY 2000, the Service provided \$56,000 to support the continuing activities of program management. In FY 2001, the NPS will provide \$60,000 to continue this support, including support for a new park-based civil/structural engineer.

Developing and Training Skilled Preservation Experts at Parks. In FY 2000, an increase of \$795,000 was provided to hire thirteen specialists in ten parks. Some of the specialists that have been hired include archeologists, structural/civil engineers, architectural conservators, and skilled craftspeople, including stonemasons. In FY 2001, an increase of \$236,000 provided for four specialists in four parks, including two that have not previously benefited.

Vanishing Treasures Workload Factors	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Number of projects resulting in improved site conditions	11	16	18
Number of maintenance experts trained	3	3	5
Number of discipline experts trained in Vanishing Treasures conservation	10	1	8
Vanishing Treasures records of individual sites increased	100	100	100

National Underground Railroad (UGRR) Network to Freedom

The National Underground Railroad Network to Freedom Act (Public Law 105-203) authorizes the National Park Service to coordinate and facilitate activities that commemorate and interpret the Underground Railroad. The NPS is required to create and maintain a national network of interpretive sites, programs and facilities related to the Underground Railroad. The Park Service is also directed to develop educational materials and provide technical assistance to organizations engaged in related activities to document, preserve, and interpret Underground Railroad history. Related organizations can and will include community organizations, educational institutions, museums, historical societies, and other public and private agencies.

To accomplish these goals, the NPS will continue its efforts to identify and document sites in cooperation with State Historic Preservation Offices, community groups and organizations, and other researchers. Sites that are identified, documented and verified as associated with the Underground Railroad will be nominated to the Network to Freedom. Sites, programs, and facilities that are accepted in the Network to Freedom will be eligible to display the newly designed program logo, and will be included in the program's new website (<http://www.cr.nps.gov/ugrr>). Fiscal year 2000 efforts also included developing, through consultation with partners, the criteria, an application form, and a process for including sites, programs, and facilities in the network. Additionally, standards for authenticating UGRR associations were developed and a publication on methodology for documenting sites initiated. The program

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continued to provide technical assistance as requested, including at least 16 site visits involving multiple sites. Program staff participated in at least 28 conferences or workshops and sponsored six "Gatherings" or public forums to facilitate networking. At least 18 parks are providing assistance related to the Underground Railroad or are interpreting and preserving their resources.

In FY 2001, the NPS anticipates the addition of sites, programs and facilities to the Network to Freedom and expansion of the program's website. The NPS also will prepare additional educational materials and a publication on documenting UGRR sites. In addition, the NPS will develop criteria and guidelines for a grant program that was authorized under Public Law 106-291 Section 150. By FY 2002, the National Park Service anticipates over 100 sites, programs and facilities will be included in the Network to Freedom, and those that are eligible will be nominated to the National Register of Historic Places, leading to an increase of 15 percent in the number of Underground Railroad-related listings.

Resource Management Planning

The Resource Management Plan is the blueprint for park resources comprehensive management, defining natural and cultural resources objectives, documenting resources status, and outlining a plan of action to ensure their well-being. The plan helps park managers to integrate cultural resource considerations into daily operations and long-term planning. Over 70 percent of the parks that are required to prepare plans have done so and regularly update them. A requirement for project funding consideration is that the project be listed in an approved resource management plan.

Cyclic Maintenance for Historic Properties Program

The objective of this program is to provide the means for park maintenance activities that occur on a fixed, predictable, periodic cycle longer than once in two years for all tangible cultural resources. Examples of projects include repointing masonry walls of historic and prehistoric structures, pruning historic plant material, stabilizing eroding archeological sites, and preventive conservation of museum objects. This program is funded at \$10.4 million in FY 2001. An additional \$2.993 million was provided in FY 2001 for this program under Title VIII. Supplemental funding for these projects may also be derived from the Recreation Fee Demonstration Program.

Cultural Resources Preservation Program

This national program provides funds for museum collections environmental control, security and other concerns and for the urgent stabilization and preservation work of archeological and historic sites, historic and prehistoric structures, cultural landscapes, and museum objects.

This program received a \$2.0 million increase in FY 1998, which in current dollars addresses seven percent of the unfunded stabilization needs of the most important historic and prehistoric structures over the next ten years and allows for the stabilization of 100 structures in 50 parks per year. Examples of structures to be stabilized in FY 2001 include the Wonder Lake Ranger Station at Denali National Park; structural components of the Administration Building at Bandelier National Monument, Erbie Church at Buffalo National River, Cranberry Bog House at Cape Cod National Seashore, Ferry House at Ebey's Landing National Historical Reserve; and the roof system of the Mission 66 Visitor Center at Wright Brothers National Memorial. Projects to be funded by this increase do not include those funded through the Vanishing Treasures Initiative.

Parks also will undertake projects to improve the preservation and protection of their museum collections. In FY 2001, hundreds of books and all of the furniture on the tour route through the Sandburg Home at Carl Sandburg National Historic Site will be treated to prevent serious damage. At Wright Brothers National Memorial, conservators will treat significant objects associated with the site. The Southeast Archeological Center will treat and improve the storage for archeological collections from four parks. In FY 2002, Vicksburg National Military Park will treat important objects according to priorities identified in a Collection Condition Survey. Bent's Old Fort National Historic Site will prepare an archives preservation plan. Capitol Reef National Park will install a security and fire alarm system with remote

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page capabilities to help protect a historic schoolhouse and its contents. Boston National Historical Park will conserve Bunker Hill artifacts before exhibiting them.

Projects to improve and maintain archeological sites in good condition include the use of new technologies for onsite assessments and treatments, documentation, the development and implementation of long-term monitoring programs, and stabilization and other conservation techniques. For example, stabilization of historic earthworks at Fort Raleigh National Historic Site require preservation maintenance. At Moores Creek National Battlefield, a plan is needed to improve the protection of archeological resources from potential looting or vandalism. Coastal sites at Olympic National Park in Washington State need to be stabilized. At Natchez National Historical Park, historic foundations and archeological sites are in need of stabilization for preservation. At the nearby Natchez Trace Parkway, a series of ancient Indian earthen mound complexes need to be stabilized and maintained. These are the kinds of projects, funded by this program, that are necessary to maintain or improve the condition of archeological resources.

Support Offices and Cultural Resource Centers

Specialists (applied ethnographers, curators, archivists, conservators, archeologists, historians, historical architects, and historical landscape architects) at the support offices, cultural resource centers, and the Harpers Ferry Center carry a share of the preservation maintenance workload for parks that lack the necessary personnel or funding. Contract work frequently augments system office staff or provides specialized expertise. Regional funds also cover a portion of the cost of the cultural resource centers in certain regions. The centers provide services to the parks in the form of research, project supervision, technical assistance, management planning, and centralized management of museum objects. The NPS maintains the following cultural resource centers: Alaska Regional Curatorial Center, Midwest Archeological Center, Museum Resource Center (National Capital Region), Northeast Cultural Resources Center, Northeast Museum Services Center, Olmsted Center for Landscape Preservation, Southeast Archeological Center, and Western Archeological and Conservation Center.

FY 2002 BUDGET REQUEST

	2002 Budget Request	Program Changes (+/-)
■ Cultural Resources Management \$(000)	78,857	-308
The FY 2002 request for Cultural Resources Management \$78.857 million, which represents a net increase of \$1.098 million over the FY 2001 enacted level. The FY 2002 proposed programmatic decrease of \$308,000 to Cultural Resources Management activities includes streamlining.		
Justification for this program change is included at the end of this subactivity's presentation.		

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F. Resources Protection FY 2001 Estimated Program and Anticipated Accomplishments

Enacted: \$43,432,000

Natural and cultural resources are continually threatened by human impacts and uses and by such illegal activities as poaching which causes harm and, in some cases, destruction of the resources for which national parks were established.

Natural resources protection is one of the many responsibilities of park law enforcement personnel as well as all Park Service employees, and is achieved through the management of legal consumptive uses, prevention of illegal consumptive activities, phase out of unauthorized uses, approved provision for non-recreational special park uses, and resolution of boundary issues. The protection of resources is accomplished through a program of patrols, investigations, remote surveillance, education of employees and the public, improved security, and increased interagency cooperation. Preventive measures focus on educating potential offenders as to the effect of inappropriate or illegal behavior on irreplaceable resources. Similarly, educating NPS employees and park visitors about the impact of their work habits and behavior on the quality of resources is an effective long run preventive measure as well as recognizing illegal activities.

The poaching of wildlife from national parks has been steadily increasing each year for the past several years. An assessment conducted by the NPS indicated that poaching involves the illegal removal of 105 species of wildlife from approximately 153 park areas around the country. A recently completed two-year investigation yielded in excess of 250 prosecutable cases on various wildlife and plant crimes; it also produced a large volume of data that indicates there is a significant trade and illegal market in wildlife and plant parts from national park areas. The data suggests that there is a significant domestic as well as an international market for these illegally taken plant and animal parts.

The illegal removal of wildlife from the parks is suspected to be a factor in the decline of at least twenty-nine species of wildlife, and may lead to the extirpation of nineteen species from the parks. In addition, several species of wildlife Federally listed as threatened or endangered are being killed within units protected by the National Park Service.

Five of the species that are Federally listed as endangered are being poached in fifteen different parks. These species are the bald eagle, peregrine falcon, hawksbill sea turtle, California brown pelican, and the Schaus swallowtail butterfly. Seven species of wildlife listed as threatened are also suffering from poaching activities. These are the Steller sea lion, grizzly bear, spotted owl, greenback cutthroat trout, green sea turtle, loggerhead sea turtle, and the desert tortoise. Wildlife are poached for different reasons, often for food or for the sale of body parts to local, regional or international commercial markets. For example, bear gall bladders and bear paws are often taken for the oriental wildlife parts trade for medicinal purposes. Elk antlers, especially those taken from national parks where the forage has no chemicals, are also traded on the Asian market. Other wildlife parts serving the illegal trade in local and world markets include yellow-crowned night-herons (food), raptors (falconry), snakes (fashion and pets), and paddlefish (caviar).

Annual law enforcement statistical report. The National Park Service uses as its baseline document an annual report on law enforcement activities within the parks to include resources crimes. For some years it has been known that resource crimes constitute the largest single category of crimes in the parks. Examples include poaching of plants and animals, timber cutting and theft, Archeological Resources Protection Act (ARPA) crimes, driving off road and encroachment on NPS lands.

Environmental crimes. The natural environment within and immediately adjacent to our national park areas is the

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subject of growing concern from past and present environmental crimes and clean water issues. The Service has been the victim of toxic dumping activities in the past and this practice continues today. With the increase of population in this country, urban sprawl threatens to increase these types of offenses. The Service has a responsibility to be proactive in the environmental crimes arena. Through the recent establishment of an environmental crimes unit, the NPS will begin this proactive approach with increased enforcement and dedicated environmental education programs. Plans are already in place to support a training initiative in cooperation with the Environmental Protection Agency.

Site destruction. The National Park Service averages over 300 documented violations where archeological resources are damaged or destroyed annually. These include Indian burial sites, tools, weapons, pottery, and baskets associated with historic and prehistoric subsistence and village sites; ceremonial sites; shipwrecks and associated artifacts. Park Service investigators have shut down organized Native American graves desecration activities returning the human remains to ancestral burial grounds considered sacred by the native people. Paleontological resources, ranging from complete dinosaur skeletons to fossilized amber crystals containing prehistoric animal embryos, are also being depleted by a growing illegal domestic and international market. Thefts of fossil resources have also occurred in NPS collections and museums and other public museums.

Fossil theft cases have implicated violators involved in other criminal activity such as violations of the Archeological Resources Protection Act, illegal drugs and weapons trade, U.S. Customs, and Internal Revenue Service violations. Initial funding of a paleontological protection program in the Intermountain region enabled rangers to uncover a major fossil poaching organizations within the United States and South American countries. Servicewide ARPA funding in FY 2001 was \$1.2 million. The use of these funds, which have been distributed to the parks, has resulted in an increase of hundreds of new cases with the added benefit of increased site protection throughout the NPS. The FY 2001 and FY 2002 goal for this program is to increase these investigative efforts and to support additional multi-agency investigations. Some funds will be spent on increased training of investigative and resource protection staff and to support long-term (multi-year) investigations in areas where past activities have shown that looting and theft are still occurring and may be increasing.

Resources Protection Workload Factors	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate
Number of commissioned rangers	1,545	1,545	1,545
Number of part-time rangers	571	500	450
Number of ARPA cases	333	316	300
Number of vandalism cases	3,484	3,310	3,144
Number of resource incidents	19,840	18,848	17,905

Alaska Subsistence

Within the State of Alaska, the National Park Service has a unique responsibility for resources protection as mandated by the Alaska National Interest Lands Conservation Act (ANILCA) of 1980. The act contains provisions that prioritize consumptive uses of fish and wildlife for rural residents of the State of Alaska. The NPS is responsible for monitoring the taking of consumptive resources on parklands. Priority over all other consumptive uses is based upon local rural residency, availability of alternative resources, and a customary and direct dependence upon the fish and wildlife populations as the mainstay of livelihood. In the past, the State of Alaska had been charged with assuring this priority. In 1989, however, the Alaska Supreme Court ruled that State management of the ANILCA provisions for subsistence was inconsistent with its constitution, which provides equal protection for all

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residents. Subsequently, Federal agencies are now charged with implementing the subsistence provisions on public lands as required by ANILCA. Minimal ANILCA requirements consist of protecting fish and wildlife resources on Federal public lands; studies to document subsistence use by area and species; development of management plans, policies and regulations for subsistence seasons and bag limits; and creation of an extensive public information/awareness system.

In FY 2000, the Federal program was significantly expanded, in response to a 1995 court order, to include fisheries management on approximately 60 percent of the navigable waters within the State of Alaska, including more than 18,000 miles of rivers and streams in NPS areas in Alaska. The court-ordered assumption of fisheries management has greatly expanded the complexity and controversial nature of the subsistence program. The scope of fisheries management in Alaska is immense and complex, particularly for the commercially important Pacific salmon species, many of which have declined drastically in recent years.

Approximately \$1.8 million was available to the Alaska Region and park bases for general subsistence management in FY 2000. An additional \$800,000 of FY 1999 funds which was spent in FY 2000 was made available to the NPS on a reimbursable basis from a Departmental appropriation for startup costs for the expanded fisheries program. Those reimbursable funds were supplanted by an FY 2001 ONPS appropriation of \$1.034 million to cover recurring costs for the expanded fisheries program. The FY 1999 funds and FY 2001 appropriation have been and will be used to fill approximately ten full-time positions throughout the Alaska Region. These positions, mostly professional fishery biologists, will provide overall oversight and management of the National Park Service subsistence fishery management program, including coordination with subsistence users, and with park, monument and regional subsistence advisory bodies; development of annual and long-term subsistence fishery regulations; coordination and oversight on interagency fishery resource monitoring projects, including the collection of traditional ecological knowledge; participation in interagency planning for subsistence fisheries management; and participation as a member agency to the Federal Subsistence Board. Participation in these activities is essential to ensure that the natural and cultural resources, and associated values, of the Alaska parks are protected, restored and maintained in good condition and managed within their broader context. Many vitally important salmon populations throughout Alaska have declined in recent years, putting increased pressure on managers to provide for the utilization of subsistence resources without threatening the conservation of those resources. The additional personnel will provide for increased support to park and monument Subsistence Resource Commissions, needed participation in more-frequent and more-complex Regional Advisory Council meetings, and for greater involvement with local partners in conducting field-based resource monitoring projects.

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FY 2002 BUDGET REQUEST

	2002 Budget Request	Program Changes (+/-)
▪ Resources Protection \$(000)	44,250	+155
The FY 2002 request for Resources Protection is \$44.250 million, which represents an increase of \$0.818 million over the FY 2001 enacted level. The FY 2002 proposed programmatic increase of \$155,000 to Resources Protection activities includes:		
	\$(000)	
▪ Streamlining	-145	
▪ Exotic, Threatened and Endangered Species and Subsistence Management – Parks	300	
Total	155	
Justifications for these changes follow.		

JUSTIFICATION OF FY 2002 BUDGET REQUEST FOR RESOURCE STEWARDSHIP

	2002 Budget Request	Program Changes (+/-)
Resource Stewardship \$(000)	312,327	+21,122

The FY 2002 request for Resource Stewardship is \$312.327 million and 2,935 FTE, which represents an increase of \$25.370 million and 175 FTE above the FY 2001 enacted level. The programmatic increase of \$21.122 million for the Resource Stewardship subactivity is justified by the proposed changes that follow:

Resource Stewardship (General)

- **Streamlining (-\$931,000; -57 FTE):** The NPS proposes to effect savings of \$0.931 million in funding and 57 FTE in this program by reducing travel and other administrative overhead cost; procurement efficiencies; and making use of technological advances (such as, but not limited to, teleconferencing). Redundant administrative positions will not be filled when vacancies arise. The NPS expects to create more efficient systems and processes without affecting program delivery.
- **Everglades Critical Ecosystem Science Initiative (-\$2,194,000):** The NPS is proposing a decrease of \$2.194 million in FY 2002 for the Everglades Critical Ecosystem Science Initiative to support higher priorities established by the Administration and to satisfy other priorities established for meeting South Florida ecosystem restoration science objectives, including the Comprehensive Everglades Restoration Plan (CERP) implementation.

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Natural Resources

▪ ***Inventory and Monitoring Program - Vital Signs Monitoring (+\$4,200,000; +45 FTE)***: The NPS is proposing an increase of \$4.2 million and 45 FTE in FY 2002 for park vital signs monitoring. This would fund monitoring in 7 networks of 46 parks: the Central Alaska, National Capital, San Francisco Bay, Northern Colorado Plateau, Greater Yellowstone, Appalachian Highlands, and Mediterranean Coast networks. It would also fund more intensive prototype monitoring in the Northern Colorado Plateau, completing a system of prototype monitoring programs that serve as centers of excellence to provide expertise and support to other parks. This increase would bring the total number of networks implementing park vital signs monitoring to twelve networks encompassing 101 parks, of the 32 encompassing 270 parks planned to be funded through the Natural Resource Challenge.

Park ecosystems are complex and constantly changing over time and space. Managers must be capable of determining whether the changes they observe in park resources are the result of natural variability or the effects of man's activities. To sustain the health of these systems, to diagnose threats to their health, and to mitigate those threats, park managers need to identify and constantly monitor changes in vital signs of parks, just as physicians monitor the vital signs of their patients. For example, the rapid global spread of disease and its potential to impact wildlife is beginning to be fully recognized, and with it a recognition of the need to monitor wildlife to track diseases. In addition to wildlife disease other factors affecting the health of wildlife, such as population size and habitat, require monitoring, as do air and water pollution; the status of rare, threatened and endangered species; fossils and other resources subject to illegal collection. For all of these natural resources, information obtained from monitoring is needed as the basis for decision-making on management actions and for collaborative activities with others that have shared responsibilities for these resources.

The park vital signs monitoring program provides a strategic and systematic approach to ensuring that all park units that contain significant natural resources will possess the basic resource information needed for effective, science-based managerial decision-making and resource protection. Parks have been organized into 32 vital networks linked by geography and shared natural resource characteristics to facilitate collaboration, information sharing, and economies of scale in natural resource monitoring. Parks in each network would share the new positions and funding, and this core program will be augmented by additional personnel and funding from other sources, including supplements specific to air and water quality monitoring. The level of funding available through the Natural Resource Challenge does not allow comprehensive monitoring in all parks but would provide a minimum infrastructure for initiating natural resource monitoring in all parks that can be built upon through future efforts.

Park networks would design a single, integrated monitoring program to monitor both physical and biological resources as air quality, water quality, geologic resources, weather, fire effects, threatened and endangered species, exotic species, and other flora and fauna. The monitoring networks would be guided by a group of park superintendents and inventory and monitoring specialists that would specify desired outcomes and evaluate performance for the network's monitoring program. The 7 networks proposed for funding in FY 2002 will join networks funded in FY 2001, including the Heartland, Northeast Coastal and Barrier, Cumberland/Piedmont, Sonoran Desert, and North Coast and Cascades networks.

This request is a component of the National Park Service's Natural Resource Challenge.

▪ ***Native and Exotic Species Management (+\$2,400,000; +30 FTE)***: The NPS is proposing an increase of \$2.4 million and 30 FTE in FY 2002 for native and exotic species management. This funding will add six new Exotic Plant Management Teams (EPMTs) that will conduct assessments, set priorities and control targeted species in parks that do not have sufficient staffs, equipment or expertise to effectively control exotics. The funding establishes a Servicewide capability to respond rapidly to new infestations of exotic species and to other critical species preservation and restoration needs.

Invasive species have been recognized as the greatest threat to park resources next to habitat loss. They are a factor contributing to the listing of more than 40 percent of the species on the Federally threatened or endangered list. In

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FY 1999, four Exotic Plant Management Teams were established, stationed in Hawaii, South Florida, Carlsbad Caverns National Park, and the National Capital Region. The addition of six new teams will permit the Service to respond rapidly to newly discovered infestations of invasive species and bring them under control or even eradicate them before they expand beyond control with simple mechanical and chemical control techniques. With these new EPMTs, the Service will increase its number of acres controlled by nine percent or more than 1,500 acres per year. Thus the Service will be able to meet or exceed performance goal 1a1B: Exotic Plant Species. A coordinator position with each team will help develop interagency agreements and partnerships with other Federal and State agencies, tribal and local governments and non-governmental organizations. In addition, \$0.550 million will be used to provide project funding for species management activities.

This request is a component of the National Park Service's Natural Resource Challenge.

- ***Establish Learning Centers (+\$1,800,000; +16 FTE)***: The NPS is proposing an increase of \$1.8 million and 16 FTE in FY 2002 to establish eight additional Learning Centers. Funding provided in FY 2001 enabled the NPS to establish five centers. Current infrastructure is inadequate for national parks to become laboratories for science to benefit society and preserve parks. There needs to be additional capacity both to host research and to extend knowledge gained to the public. The NPS plans to develop, with private assistance, 32 Learning Centers. Critical needs are housing, lab and class space, in-park logistical support, and Internet/computing access. The centers will be located in gateway communities or parks as appropriate. Their scope will vary from modest housing for three to five scientists to facilities for 20 to 30 researchers and several projects. Learning Centers will serve a network of parks. Funding will be used initially to match other funds to establish the centers. As centers are established, they will be staffed with a research/center coordinator and an education position.

Investment in infrastructure will facilitate and encourage Federal scientists, faculty, graduate students, and other researchers from all disciplines to use parks as places of inquiry. Providing such infrastructure will also leverage NPS fiscal resources by attracting outside sources of funding to support science in the parks. Facilities will utilize existing structures (through rental agreements, the NPS Housing Initiative, or through other partnerships) or renovate and adapt existing structures, where possible.

These facilities will bring researchers closer to the parks' natural resources, facilitate collaborative studies, assist the park staff, and obtain greater direct and in-kind financial support. Parks with interdisciplinary resource management staffs will provide more program continuity and achieve better products. By providing access to park resources and limited park logistical support, these centers will leverage significant financial and research assistance for projects identified by park managers.

The research/center coordinator will identify and involve specialized expertise in universities, the Biological Resources Division/USGS, and other agencies that can meet park needs. There are also numerous opportunities for external research grants, matching funds, and other forms of support. The challenge for NPS is to maximize these opportunities, and to coordinate scientific activities for maximum benefit to the parks and society. Coordinating, identifying, and marketing of research opportunities, science planning, and overall science administration are all essential to science in the parks. An education specialist at each Learning Center will identify target audiences and develop informational materials specifically for various segments of society that make resource issues relevant and personal to them. The NPS must be able to explain resource issues in terms understood by wide audiences and in ways that encourage participation. The education specialist will be able to do this and also coordinate public volunteers to aid in monitoring and education about monitoring.

This request is a component of the National Park Service's Natural Resource Challenge.

- ***Natural Resource Preservation Program (+\$4,000,000)***: The NPS is proposing an increase of \$4.0 million in FY 2002 for the Natural Resource Preservation Program (NRPP). In FY 2002, the NPS will use \$1.4 million of the added NRPP funding for smaller regionally allocated projects, and \$2.6 million for larger high priority projects.

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There are nearly \$470 million in unfunded natural resource project needs identified in NPS Resource Management Plans. The NRPP provides the major source of dedicated funding available to respond to this backlog, which includes projects addressing issues such as restoration of native plant communities, exotic species control, native species management, threatened and endangered species recovery, specialized inventories, geologic resource protection, and other critical natural resource management issues. Portions of the NRPP are strategically targeted to meet specific needs, such as small projects in small parks, disturbed land restoration, and threatened and endangered species projects. In FY 2001, approximately 60 percent of the funding was available for park-specific natural resource management priorities. Except for the small park projects, most of the project money is allocated competitively at the national level to ensure that projects are of the highest quality and that they are the most critical to address at this time. After park regional priorities are set, a national panel of resource specialists reviews and ranks projects, and recommends the highest quality and most critical projects to be funded.

In FY 2000, an increase of \$2.875 million was received, bringing the Natural Resource Preservation Program total to \$8.307 million. Examples of the new projects undertaken in FY 2000 -- most continuing in FY 2001 and 2002, include: (1) installing measures to reduce the theft of petrified wood at Petrified Forest National Park, (2) intensive gill-netting to reduce exotic lake trout to a manageable level and thus preserve the native Yellowstone cutthroat trout population in Yellowstone Lake, (3) using satellite transmitters to monitor (and track on a public website) endangered loggerhead turtles nesting at Gulf Islands National Seashore, and (4) developing and putting into a geographic information system information that is needed to restore 361 acres of Denali National Park's Caribou Creek and protect its salmon populations from mine tailings and other effects of past mining.

This increase would provide a 50 percent increase for larger park-specific priority projects. These larger projects (ranging from \$50,000 to \$900,000 total) make up the largest portion, from a dollar point of view, of the project backlog. The projects potentially to be funded in FY 2002, depending upon the funding available, will be selected through the competitive process in early summer 2001. Examples of high priority projects that are eligible for this funding are: (1) working with cooperating institutions to systematically document, remove, and preserve the remaining scientifically significant fossilized bones of the 34 million year-old rhinoceros-like mammal, Titanotheres, being vandalized from the vast and remote bone beds at Badlands National Park, (2) removing debris resulting from over 100 years of cave development activities at Wind Cave National Park to restore numerous side passages that have been partially or completely blocked by trail construction debris, altering the natural airflow and water drainage patterns in the cave, creating an artificial appearance in some areas, and making large areas inaccessible to survey, inventory, and research projects, (3) putting in place a more systematic approach to exotic species control throughout 15,500 acres of diverse and fragmented habitat at Indiana Dunes National Lakeshore, by documenting location, coordinating existing information in geographic information system maps and databases, and developing and implementing a treatment schedule for the highest priority habitat, and (4) actions to stem a recent invasion of feral hogs at Big Bend National Park, which have the potential to cause severe degradation of the park's desert water sources, the relict Chisos Mountains woodland habitat, and the Rio Grande riparian zone, which include habitat for the rare or endangered Mexican black bears, black-capped vireos, and Big Bend mosquitofish.

In addition to providing for larger projects, this increase would allocate \$1.4 million that could be used for smaller projects and cyclic projects at all parks, with priorities determined by parks and regions. For example, in FY 2002, Fort Scott National Historic restored a 5-acre site at Fort Scott Prairie. It was one of several tallgrass prairie restorations being undertaken at small midwestern and western parks. These projects demonstrate the historical plant community present during the activities for which these sites are preserved, and in some cases are used as learning laboratories for local schools. An example of a small project eligible for funding in FY 2002 is a project at Walnut Canyon National Monument to determine the distribution and breeding status of Mexican spotted owls within the monument and collect data on forest structure to comply with the habitat and monitoring requirements in the species recovery plan and to finalize a fire management plan.

This request is a component of the National Park Service's Natural Resource Challenge.

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▪ ***Expand Air Quality Monitoring and Related Activities (+\$2,600,000; +20 FTE)***: The NPS is proposing an increase of \$2.6 million and 20 FTE in FY 2002 to expand air quality monitoring. National Park Service efforts to improve air quality must be based on adequate data and enhanced capability to collaborate in development of mitigation plans. The NPS air quality monitoring network would be expanded to improve geographic representation, with emphasis on parks most threatened by air pollution or most vulnerable to degradation. Complementary activities related to data management, reporting, and interpretation would also be augmented, as would funding provided to parks to support monitoring efforts. Intensive studies would assess cause and effect relationships, establish critical loads, and answer other questions unique to parks and not addressed by programs aimed at human health effects of air pollution. This increase would also enhance professional expertise at the national and field level to work with neighbors and regulatory agencies to assess and mitigate the effects of air pollution caused by sources outside park boundaries.

In FY 2002, this funding would be used to establish or enhance air quality monitoring in eight to twelve parks. Of the total amount requested, \$1.0 million would provide and enhance support for monitoring technicians in parks; the remaining funds would be used to: provide for data analysis in the Air Resources Division; enhance air resource protection professional expertise in ten groups of linked parks and the Air Resources Division; enhance public education capabilities; and provide project funds for priority projects related to ecological effects of air pollution.

The current air quality monitoring program is focused on 48 parks designated as "Class I" areas under the Clean Air Act. All pollutants are not monitored at all Class I parks. Thirty-six Class I parks have fine particle sampling, but fewer parks monitor acid precipitation (31), ozone (25), and visibility (18). During the past ten years, acid precipitation (nitrate) has increased in almost half of the 21 parks where monitoring has been conducted, and ozone levels have increased in 2/3 of the monitored parks. Ozone levels in several parks have been severe enough to threaten visitor and employee health. Visibility trends are more positive, but the dirtiest days are becoming dirtier in 25 percent of the monitored parks. These trends are inconsistent with the air quality goals adopted by the NPS in response to the Government Performance Results Act.

Limited air quality information in parks inhibits the ability to determine if harm is occurring to resources or if visitor health and enjoyment are being compromised. Significantly, Class I parks comprise only 27 percent of the total NPS acreage nationwide, and represent only a small portion of the 250 parks with significant natural resources (e.g., there are no Class I areas in the tundra). Also, basic inventories of park resources affected by air pollution (i.e., air quality related values, or AQRVs) are virtually nonexistent except for a few Class I parks. Without resources to monitor and investigate the impacts of air pollution (including acid deposition and airborne toxics) on park ecosystems, remediation plans cannot be designed.

In addition to expanding ambient air quality monitoring efforts, this increase would allow the NPS to compile basic information for the 250 parks with significant natural resources in order to identify resources most sensitive to air pollution. Special studies would be conducted to assess symptoms of harm -- including cumulative ecological impacts of air pollution, and to articulate air quality conditions needed to prevent resource degradation and sustain ecosystems. The NPS must provide State regulatory agencies and industry with this information so that these impacts are considered and mitigated during planning and permitting processes. Between 2000 and 2008, States must develop plans for complying with new air quality standards and regional haze program requirements. Long-term protection of park resources cannot be achieved unless air pollution impacts on visibility and ecosystems are considered and incorporated into these plans. The NPS can add significant value, direction, and information to these collaborative efforts if it has the resources to become a full partner with States, tribes, and other entities and maintains a strong and continuing presence.

Finally, this increase would allow the NPS to better educate the public and our employees about air resource management issues through traditional means (interpretive brochures, displays, and programs in parks) and using evolving information technology to make air quality real-time data and images from parks more easily accessible through the Internet.

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This request is a component of the National Park Service's Natural Resource Challenge.

- ***Establish Resource Protection Fund (+\$300,000)***: The NPS is proposing an increase of \$0.300 million in FY 2002 to establish a resource protection fund. Park rangers need greater access to more sophisticated approaches to park resource protection and law enforcement that target vulnerable natural resources in parks, such as paleontological resources, sensitive species, and native flora and fauna. A project funding source will enhance the creation and application of field-based law enforcement tools and investigative techniques to protect park natural resources. The new funding source would provide for focused projects to identify resources most at-risk as well as sources of risk; training; and related tools for prevention and prosecution of poaching, vandalism, and other resource crimes.

This request is a component of the National Park Service's Natural Resource Challenge.

- ***Implement Resource Protection Act (+\$500,000; +6 FTE)***: The NPS is proposing an increase of \$0.500 million and six FTE in FY 2002 to implement the Resource Protection Act. This program implements provisions of the 1996 Omnibus Park Act which allows the NPS to restore resources damaged by third parties. Resource restoration will be undertaken using cost recovery, rather than NPS appropriations, as provided for by the 1996 Omnibus Act. This funding will provide the needed expertise and administrative framework to plan and direct restoration and to support cost recovery. The program will be implemented in direct support of injured park resources, but will be administered by the Environmental Quality Division to ensure program consistency and efficient deployment of specialized expertise.

It is estimated that there are over 2,000 instances of damage to park resources per year that require response and restoration. Currently, there is no implementation for this program; there is only limited capability for restoration activities for damages resulting from oil spills and the marine environment, available largely as a result of funding from the Oil Spill Pollution Act.

Program outputs will include: Evaluation of damaged resources; baseline characterizations; responsible party contacts; coordination with State and Federal trustee agencies in seeking coordinated recoveries from responsible parties; and provision of contract and other support in recovery actions and evaluations. Program outcomes will include: Restoration of damaged resources; replacement, restoration or other activities associated with mitigation of damages to public property; and preparation of yearly report to Congress mandated by 16 USC 19jj, listing recoveries, amounts spent, and returns to the Treasury and program accountability. The program will work in tandem with existing natural resource damage and restoration processes to assure uniform application of recovery processes and to network with existing sources of expertise in the public and private sectors. Damage response and restoration will be undertaken without impacting the current NPS budget. Once restoration is achieved, surplus funds are then forwarded to the General Treasury.

This request is a component of the National Park Service's Natural Resource Challenge.

- ***Expand Water Resource Protection and Restoration (+\$1,000,000; +13 FTE)***: The NPS is proposing an increase of \$1,000,000 and 13 FTE for water resource restoration and protection. This increase supports an effort to expand the field capability to respond to water resource issues in parks.

Over 250 units of the National Park Service contain rivers, lakes, reservoirs, streams, springs, and wetlands, including 18 national riverways, 14 national seashores and lakeshores, and 12 parks containing major reservoirs. Numerous others, such as Yellowstone, Katmai, Everglades, Yosemite, and Big Bend National Parks, contain nationally designated Wild and Scenic Rivers and/or State-designated Outstanding National Resource Waters. Many of these waters and related aquatic and riparian resources are in good condition but are threatened with impairment. Others are in an impaired state and require restoration. The NPS is limited in its ability to design and carry out effective protection and restoration measures. The present water resources program does not provide sufficient professional expertise or project support to protect and restore critical water resources. Of the 250 parks with water

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resources, less than ten percent have their own aquatic resource specialist. To address these needs, this request proposes to increase funding for protection, assessment, and restoration projects and increase expertise in parks to address priority water resource needs.

Analyses of Servicewide workload, park resource management needs, and budget priorities indicate a high demand for water resource, fishery, and aquatic technical assistance in parks to address ongoing issues. Examples include analysis of alternative water supplies for the South Rim at Grand Canyon National Park, recovery of endangered fish species in the Northwest, groundwater assessments at the desert parks, threats to wetlands at Gulf Coast parks, and addressing significant pollution sources affecting parks such as Chattahoochee River National Recreation Area, Delaware Water Gap National Recreation Area, Mojave National Preserve, Padre Island National Seashore, Klondike Gold Rush National Historical Park, and Buffalo National River. While the Servicewide Water Resources Program can provide limited, basically one-time assistance, more locally-based expertise is justified where water resource, fishery, and/or other aquatic issues are substantial and ongoing in a particular watershed area. Areas such as the Great Lakes, Colorado Plateau, and the Mid- and South Atlantic Coasts require more ongoing assistance. Positions would be funded by the Servicewide program, but would be located in parks where they have been identified as a priority and shared among parks in the same watershed or otherwise sharing similar issues. Thirteen additional thirteen aquatic resource professionals in parks are proposed.

This request is a component of the National Park Service's Natural Resource Challenge.

▪ ***Invasive Species Control/Threatened and Endangered Species Recovery at Parks*** (+\$3,200,000; +42 FTE): The NPS is proposing \$3.2 million and 42 FTE for park increases at 22 units as part of the Natural Resource Challenge. The increases focus on addressing management issues related to native and nonnative species. More than 160 parks provide important habitat for endangered species restoration because of the parks' protected status. There are at least 168 species listed under the Endangered Species Act, which are on NPS lands and have recovery plans. These tasks run the gamut of conservation activities from the reintroduction to the control of competing exotics and from public education to law enforcement patrols. The importance of endangered species activities is reflected in the Service's long-term goal Ia2: Threatened and Endangered Species. Likewise, exotic (invasive nonnative) species are displacing natural vegetation and adversely impacting entire ecosystems, and displacing all types of native species, including those that are threatened or endangered.

Acadia National Park (Maine)

\$345,000 - Funding is requested to control exotic species, which are degrading the native ecosystems and threatening watersheds by nutrient loading and atmospheric deposition. The park plans to develop and implement a cooperative plan with the State to protect native fish, conduct inventories, monitor aggressive exotic invertebrates and mitigate 15 of the most aggressive plant invaders. These activities would enable the park to restore native communities, collaborate in recovery programs, mitigate disturbance and monitor vital signs.

Appalachian National Scenic Trail (Connecticut, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Vermont, Virginia, West Virginia)

\$142,000 - Rare species inventories have identified 1,882 rare, threatened and endangered species and exemplary natural communities at 460 sites along the 2,167 miles of trail. Funding would provide resource management and documentary support. This request would allow exotic

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Parks Represented in this Request

Acadia National Park
Appalachian National Scenic Trail
Channel Islands National Park
Dinosaur National Monument
Gates of the Arctic National Park and Preserve
Great Basin National Park
Great Sand Dunes National Monument and Preserve
Homestead National Monument of America
Hopewell Culture National Historical Park
Kalaupapa National Historical Park
Lake Clark National Park and Preserve
Little River Canyon National Preserve
Monocacy National Battlefield
Obed Wild and Scenic River
Padre Island National Seashore
Pictured Rocks National Lakeshore
San Juan Island National Historical Park
Stones River National Battlefield
Sunset Crater National Monument
Walnut Canyon National Monument
Wupatki National Monument
Zion National Park

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species control at sites with the rarest resources and greatest threats, as well as more efficient and accurate use of rare species data. Funding would eliminate invasive exotic species ensuring the survival of threatened and endangered species.

Channel Islands National Park (California)

\$498,000 - At least nine Federally-listed threatened and endangered plant species, numerous native plants and animals, and most of the over 2,000 archeological sites on the island are threatened by feral pigs. Funding will provide a system of fenced management zones that will prevent the movement of the pigs until removal can be completed (estimated at six years). This program would allow the park to survey and monitor island resources, provide resource protection and restoration, visitor services, and facility maintenance.

Dinosaur National Monument (Colorado, Utah)

\$189,000 - Funding is requested to control and monitor 17 invasive species, restore habitat of five endangered and one threatened species (all of which are directly impacted by invasive nonnative species), and monitor threatened and endangered species' responses to habitat restoration and invasive species control. The park contains numerous species of limited distribution, including 15 endemic plants and four endemic fish. Invasive salt cedar (tamarisk) has altered hydrologic function and sediment transport processes in the river channels, with direct impacts to endangered fish and a threatened plant. The proposal would establish a continuing program that will contain the spread of established invasive species and enhance prevention and early detection capabilities.

Gates of the Arctic National Park and Preserve (Alaska)

\$148,000 - Funding would be used to establish a long-term natural resource monitoring program to help maintain the health and integrity of the park's resources. The park also has numerous species of fish and wildlife, many of which are used heavily by ten year-round subsistence communities and seasonally by sport hunters and fishermen. Resource monitoring of these legal consumptive uses would be provided through this increase proposal. The funds would be used to monitor two of the harvested species each year, establishing the first consistent data gathering on moose, Dall sheep, caribou, bear, musk ox, lynx, and wolves.

Great Basin National Park (Nevada)

\$126,000 - Funding is requested to implement a proactive threatened, endangered, and sensitive species management program and an aggressive nonnative plant eradication program. Forty-two species of nonnative plants, five of which are of serious concern, infest approximately 12,786 acres of the park. Funding would initiate investigations and develop protective measures to assist in species maintenance and recovery. Current species diversity will be maintained and/or restored through the development of actions and conservation measures. Funding would ensure restoration and preservation of 47 species.

Great Sand Dunes National Monument and Preserve (Colorado)

\$180,000 - Funding would be applied to the management of invasive species to monitor, manage and protect threatened, endangered and endemic species and their associated habitats. Funding would be used to map existing habitats and to develop resource management plans for this park unit.

Homestead National Monument of America (Nebraska)

\$82,000 - Funding is requested to reduce the exotic plant species within the second oldest restored tallgrass prairie in the Nation. Preservation and maintenance of the prairie is critical and would be managed through prescribed burns, application of herbicides, manual removal and mowing. This request would eradicate the threat of spreading exotic vegetation to the 110 acres of the restored prairie.

Hopewell Culture National Historical Park (Ohio)

\$105,000 - The park has grown from one unit of 120 acres to five geographically dispersed units totaling over 1300 acres. A total of 700 plant specimens, representing 438 species have been collected. Two species, *Spiranthes ovalis* and *Eleocharis ovata*, are on the Ohio Threatened and Endangered Species list. Initially, the park would reestablish native vegetation on 400 acres of lands previously disturbed by agricultural activities. Another 150 acres of early

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growth woodland would be restored through the successful containment and eradication of invasive exotic vegetation such as Canadian thistle, multiflora rose, garlic mustard and Japanese honeysuckle. This funding will enable the park to eradicate unwanted species and help the native varieties of vegetation to become established.

Kalaupapa National Historical Park (Hawaii)

\$211,000 - The park's resources are threatened by nonnative animal and plant species, requiring immediate protection in the valleys, rain forest, and sea cliffs. This request would fund implementation of recovery plans for threatened and endangered species, control of alien species, and monitoring of changes to the natural resources. The impacts of exotic wildlife and plants would be monitored. Resource management projects such as wildlife enclosure maintenance, exotic animal control, exotic plant removal, and habitat restoration would be developed and implemented.

Lake Clark National Park and Preserve (Alaska)

\$147,000 - Funding is required to manage wildlife resources for natural and healthy populations in the park and preserve. Growing public interest in the park and easy air access from Anchorage has led to a dramatic increase in both private and commercial use in the park. Funding would develop accurate baseline wildlife information.

Little River Canyon National Preserve (Alabama)

\$85,000 - The park needs to inventory and preserve six Federally-listed threatened and endangered species, monitor water quality, and restore disturbed lands. The requested funds would allow the park to monitor water quality 12 times per year, improve protection of six endangered species, and restore 200 acres of disturbed land per year.

Monocacy National Battlefield (Maryland)

\$118,000 - The park land has doubled since 1991. The natural resource management program would monitor endangered plants, complete inventory of plants and animals, establish effective management strategies for invasive plants, white-tail deer, and herbicide/pesticide use, monitor water quality in all streams, and increase watershed protection activities and riparian buffer zone management.

Obed Wild and Scenic River (Tennessee)

\$195,000 - Increased visitation, feral hogs, active oil and gas operations, sedimentation, construction of 2,000 dams in the watershed, and abandoned coal mines are threatening to destroy the values for which the park was established. Six Federally-listed endangered species have been found in the park. Funding would be used to collect and analyze resource data, implement mitigation strategies, assemble educational materials, and coordinate with local, State, and Federal agencies to meet compliance and resource protection needs.

Padre Island National Seashore (Texas)

\$95,000 - Funding is required to prevent the extinction of the Kemp's Ridley Sea Turtle, the most endangered sea turtle species in the world. Padre Island has become a nesting colony for this endangered species. Funding would enable the park to locate nesting turtles, excavate and incubate turtle eggs, release turtle hatchlings and patrol 72 miles of beach. This request would help ensure the survival of this endangered species.

Pictured Rocks National Lakeshore (Michigan)

\$55,000 - Funding is requested to protect threatened and endangered lakeshore plant and animal species, threatened by nonnatives such as bishops weed, periwinkle, sea lamprey, zebra mussel, ruffe, and gypsy moth. Funding would permit annual control of four of 86 nonnative plant and five nonnative animal species within 35,571 acres of land and water.

San Juan Island National Historical Park (Washington)

\$95,000 - Funding is requested to monitor changes in park resources that are directly threatened by exotic species proliferation, increasing visitation and adjacent development. This proposal would establish an inventory of threatened and endangered species, allow development of an exotic species management plan, ensure compliance, and implement education programs and partnerships.

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Stones River National Battlefield (Tennessee)

\$132,000 - Invasive exotic plant species are jeopardizing the area's cedar glades containing threatened and endangered plant species and plant communities found only in middle Tennessee. Funding would allow for the inventory and monitoring of threatened and endangered species, restoration of native plant regimes, management of water quality, identification and monitoring of vital signs to current scientific standards, and the development of a comprehensive integrated pest management program.

Sunset Crater National Monument, Walnut Canyon National Monument and Wupatki National Monument (Arizona)

\$100,000 - Funding would improve inventory assessment, monitoring and mitigating threats of natural resources at these Flagstaff area national monuments. The expansion of Walnut Canyon and Wupatki has increased the need for expanded resource management capabilities. The monuments' rich array of diverse flora and fauna include peregrine falcons, Mexican spotted owls, goshawks, golden eagles, mountain lions, bobcats and a variety of rare plant species. Threats to resources include off-road vehicle use at Sunset Crater, poaching of wildlife and the loss of riparian habitat at Walnut Canyon, trespass cattle grazing and the spread of noxious plant species such as tamarisk and camelthorn at Wupatki. Funding would provide for the development of a comprehensive plan for the preservation and protection of addressing exotic species, protecting rare and threatened species, and other natural resource issues.

Zion National Park (Utah)

\$152,000 - Funding would establish programs to restore populations and habitats of the endangered Southwest willow flycatcher and the threatened desert tortoise. Funding would also enhance the ability to quantitatively measure changes in biotic and physical resources to provide proactive management and data development for linkage to geographical information systems for predictive modeling, analysis, and restoration planning.

This request is a component of the National Park Service's Natural Resource Challenge.

■ ***Bison Monitoring at Yellowstone National Park (+\$1,200,000; +21 FTE)***: The NPS is proposing an increase of \$1.2 million and 21 FTE in FY 2002 for base funding to implement a new bison management program. In December 2000, a Record of Decision (ROD) was signed by the Secretary of the Interior and the Secretary of Agriculture to implement a program resulting from the Final Environmental Impact Statement for Long-term Bison Management at Yellowstone National Park. This Federal decision commits Yellowstone National Park to a comprehensive list of bison management actions intended to reduce the unnecessary killing of bison and mitigate the risk of brucellosis to livestock. The Governor of Montana concurrently signed a Record of Decision to implement this Joint Bison Management Plan. These actions will include: remote ballistic vaccination of bison calves and yearlings; bison population monitoring to enforce separation of bison and livestock during winter; and bison hazing or capture to enforce population management objectives. For the next 15 to 20 years about 250 bison will be vaccinated annually. In winter the herd of 3,000 bison will be monitored to ensure their separation from livestock outside the park. These actions will result in the long-term stability and survival of wild bison in Yellowstone.

The itemized budget incorporated into the final environmental impact statement economic analyses is the basis for this request. It is crucial that the Park Service take the lead for wildlife disease management inside the park. This precedent-setting operation will require full-time NPS staff to manage the vaccination program, incorporate scientific findings and support a substantial seasonal field crew operating in Yellowstone backcountry. Extensive disease risk management forms the basis for the decision and dictates that the vaccination effort continue for 15 to 20 years in the park. Concurrent with the vaccination operation, the ROD requires that temporal and spatial separation of bison and cattle during the winter be maintained to minimize the risk of transmission of brucellosis to cattle. Maintaining separation requires substantial personnel and associated costs to constantly monitor bison distribution and abundance throughout the backcountry. Additionally, the requested funding will allow the implementation of the prescribed periodic bison hazing or capture at existing facilities to achieve spatial/temporal separation and/or other population objectives.

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▪ ***Implement NPS Role in the Comprehensive Everglades Restoration Program (+\$3,047,000; +39 FTE)***: In December 2000, the NPS programmed \$1.697 million of the Critical Ecosystem Science Initiative (CESI) funding for CERP implementation. The FY 2002 budget request proposes an increase of \$3.047 million and 39 FTE in addition to the reprogrammed to support implementation of the Comprehensive Everglades Restoration Program (CERP). In December 2000, the Water Resources Development Act of 2000 was signed and authorized the implementation of the CERP. The plan has 68 separate projects, of which 42 directly affect National Park Service lands in South Florida, primarily Everglades and Biscayne National Parks. The estimated cost is \$7.8 billion, and the implementation schedule shows projects continuing until 2038. The costs are borne 50/50 by the Federal and State governments, with the Corps of Engineers the lead Federal agency. None of the Corps of Engineers project funds are allocated to support NPS involvement. This request builds upon the \$800,000 used for this purpose in FY 2001, and represents full participation by the NPS.

The existing NPS staff participated in the development of the Comprehensive Everglades Restoration Plan. However, the implementation phase represents a doubling of the existing workload. An examination of current staffing and resource allocation indicates that, as existing non-CERP projects are likely to continue through 2005, there is little ability to direct resources to these new CERP projects. The National Park Service, Fish and Wildlife Service and the U.S. Geological Survey have prepared a detailed joint proposal for full DOI participation. It lays out specifics on the FY 2001 through FY 2004 projects, impact to DOI lands and trust responsibilities and funding details. Without these funds, the NPS will not be able to participate fully in the single most important step in the restoration of Everglades National Park, Biscayne National Park and Big Cypress National Preserve.

To minimize overlap between the DOI technical efforts related to CERP implementation, key DOI project teams will be composed of joint interdisciplinary FWS, NPS and USGS personnel. The specific DOI project teams will have staff composition established in ways that reflect individual bureau expertise, statutory authorities, logistical needs, and DOI site-specific mandates. This funding will enable NPS participation in conducting feasibility studies (e.g., water preserve areas, Florida Bay, Biscayne Bay, comprehensive integrated water quality plan), pilot projects (e.g., seepage management, Lake Belt in-ground reservoir), and project implementation reports. NPS staff will be involved in project management and analysis, rulemaking, recovery coordination, public outreach, and technical support. The 39 FTE requested for CERP implementation will form the NPS part of a joint DOI team that will provide technical expertise in the interagency project formulation process, support independent assessments of project impacts and effectiveness, and play key roles in conducting and evaluating long-term ecosystem recovery monitoring programs.

In part to respond to concerns expressed by members of the Department's Appropriation's Committee over the management of DOI Everglades activities, the Department has elsewhere established a Director of Everglades Restoration position. The Director is responsible for senior-level coordination, management and oversight of all departmental activities related to Everglades restoration, including those of the National Park Service.

Park Management/Resource Stewardship

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